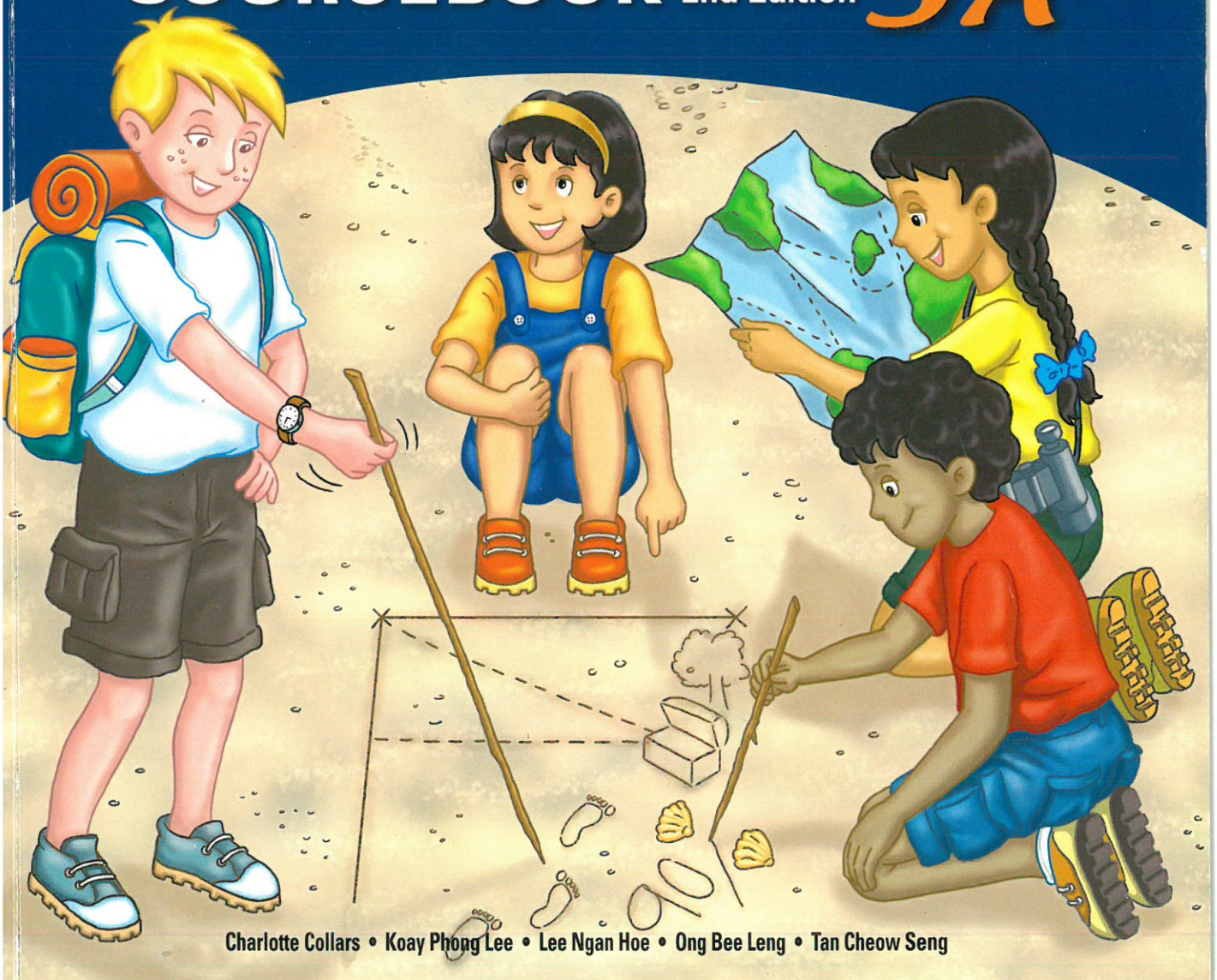
Marshall Cavendish Education

Shaping Maths

COURSEBOOK 2nd Edition 5A



Charlotte Collars • Koay Phong Lee • Lee Ngan Hoe • Ong Bee Leng • Tan Cheow Seng

Shaping Maths

COURSEBOOK 2nd Edition 5A

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PREFACE

Shaping Maths is an instructional package written according to the latest Primary Mathematics Syllabus provided by the Ministry of Education, Singapore. The package is designed to meet the learning needs of pupils from Primary 1 to 6. For Primary 5, the package consists of two coursebooks, four activity books and a teacher's resource pack.

Approach

The Primary 5 package has been designed to provide continuity in the way pupils experience Mathematics through the lower primary packages. Wherever possible, familiar everyday situations are used to introduce new topics so that pupils will be able to relate the application of new concepts learnt with their daily lives. Through its concrete-pictorial-abstract approach in implementing the spiral curriculum, this seeks to promote pupil engagement and enhance the learning process.

Continuing research in education has resulted in the introduction of new features in the second edition. Through these features, educators are further equipped with various strategies in addressing teaching and pupils' learning needs. These features also include more open-ended questions so as to encourage exploration and in-depth thinking among pupils. Thus, mathematically inquisitive learners are born!

Features

Chapter Openers
Encourages active pupil participation in learning.

Friends of *Shaping Maths*
The themes in the coursebook revolve around Aini, Bala, Caili and David. The characters help to stimulate pupils' interest and heighten their involvement in the learning process.

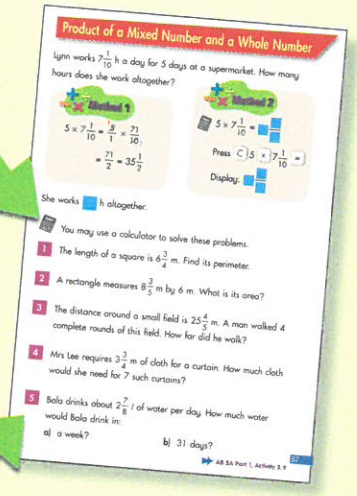
Recall Activity Marker NEW
Emphasises the importance of establishing connections in learning mathematics. The marker directs pupils to a diagnostic exercise, *Recall*, in the activity book.

Use of Calculator

NEW

Inculcates the appropriate use of calculators without compromising basic computational skills through:

- introducing pupils to and providing guidance on the use of calculators,
- encouraging pupils to exercise judgement where the use of calculators is optional thus appreciating the power of mental computation versus calculator-based computation,
- exposing pupils to investigations involving tedious computation, so that they can appreciate the calculator as a learning tool.



Question Classification

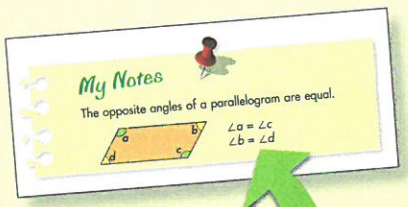
NEW

◆ – pre-requisite skills

■ – reinforcement of current concepts

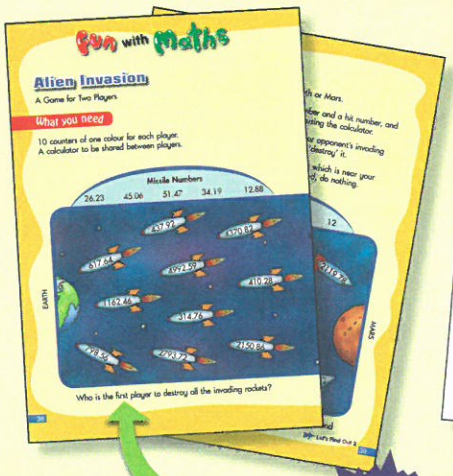
● – higher-order thinking skills

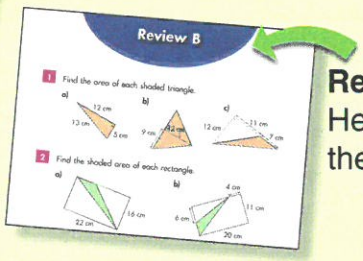
Helps teachers to spend their time more effectively by using the appropriate questions to get pupils to master the necessary skills.



My Notes

Helps pupils to consolidate and recall their learning and commit to memory some key ideas.





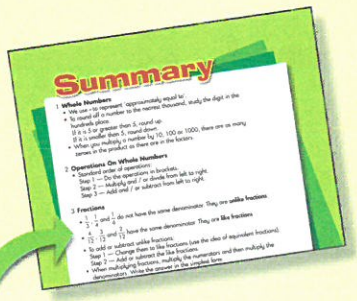
Review

Helps pupils to consolidate their learning.

Fun With Maths

NEW

Engages pupils in interactive mathematical activities that encourage exploration, discovery and active thinking.

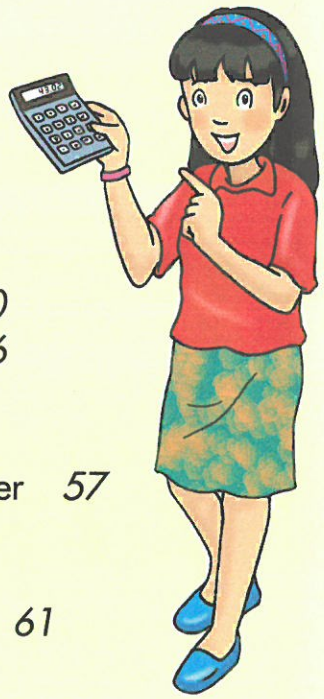


Summary

NEW

A one-page summary helps pupils to consolidate their learning for each semester. It also serves as a quick revision guide for pupils, especially when preparing for semestral assessments.

CONTENTS



1 Whole Numbers

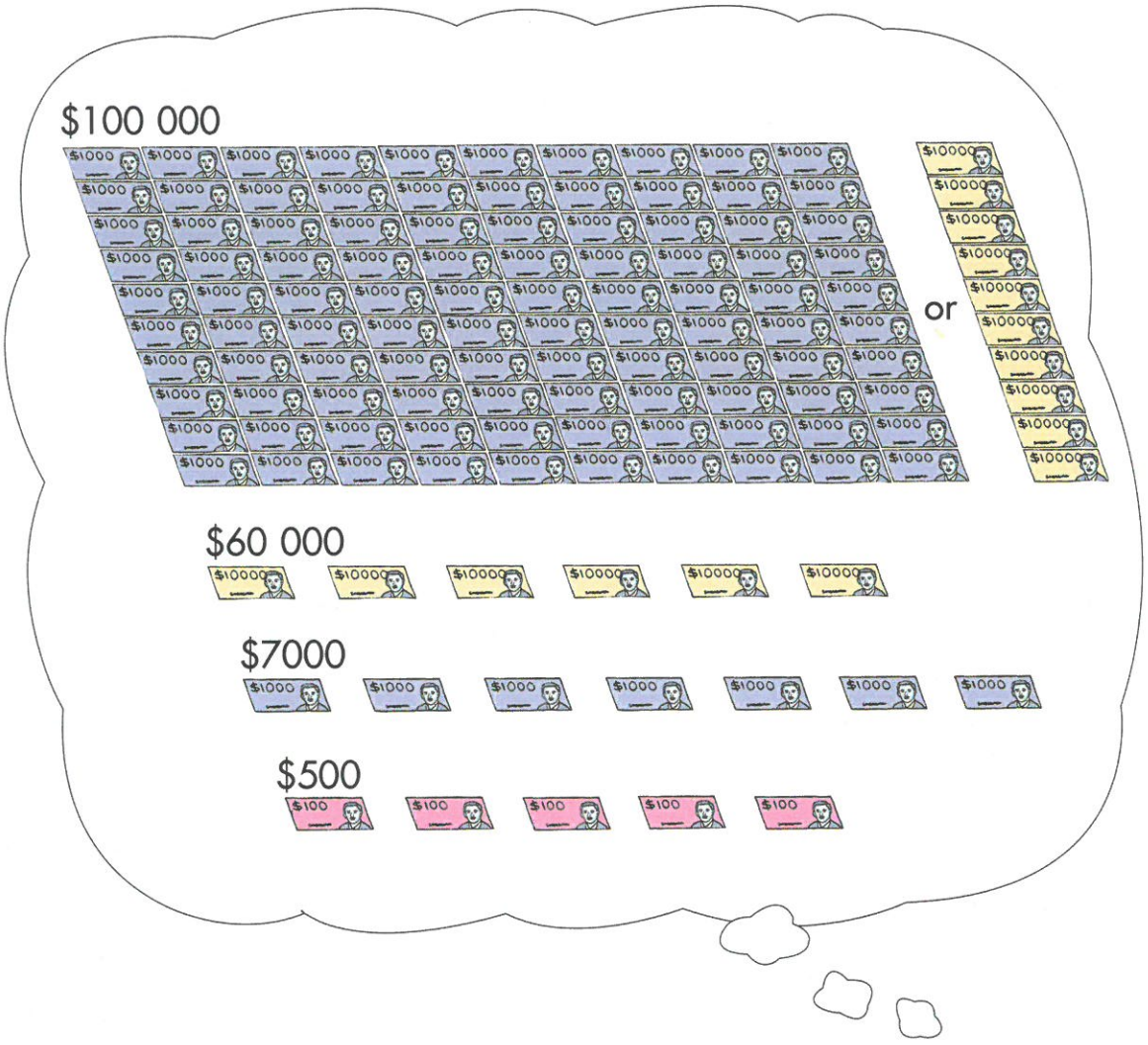
Aini's parents are planning to buy a flat.

They have to pay one hundred and sixty-seven thousand and five hundred dollars for the flat.

AB 5A Part 1, Recall 1

Number Notation and Place Values

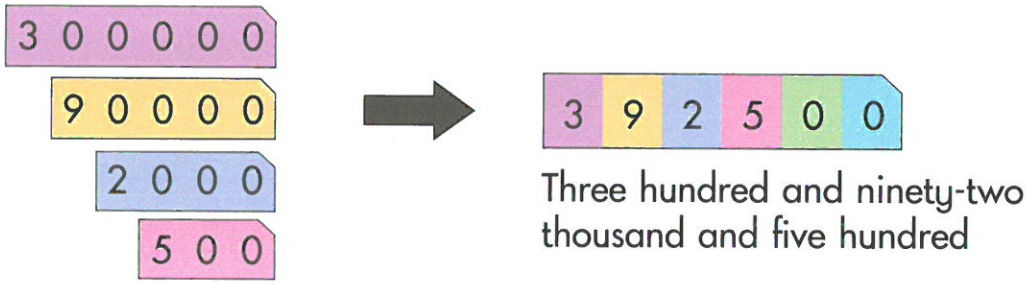
What is the selling price of the flat?



The selling price of the flat is **$167 500**.

We read $167 500 as **one hundred and sixty-seven thousand and five hundred dollars**.

Mr Loh is interested in a four-room flat. The flat costs $392 500.



Hundred Thousands	Ten Thousands	Thousands	Hundreds	Tens	Ones
3	9	2	5	0	0

In **392 500**,
the digit **3** is in the hundred thousands place. Its value is 300 000.
The digit **9** is in the ten thousands place. What is its value?
What is the value of the digit **2**?

How do you read 526 947?

1 Express in words.

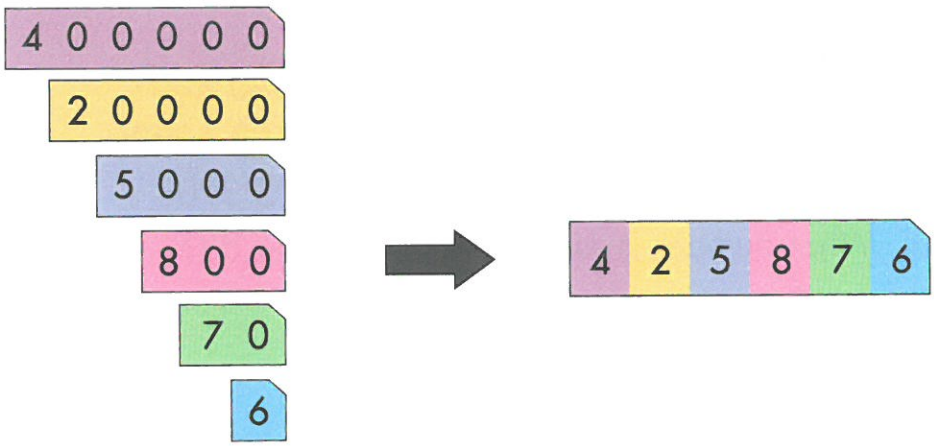
a) 110 000
b) 300 050
c) 405 602
d) 514 276
e) 700 003
f) 800 112

2 Express in figures.

a) Two hundred and ten thousand
b) Five hundred and eleven thousand, six hundred and one
c) Seven hundred and forty-five thousand and sixty
d) Nine hundred thousand and seven

3 The value of each digit in 425 876 is shown below.

425 876 = 400 000 + 20 000 + 5000 + 800 + 70 + 6



What is the value of each digit in 631 429?
How do you read 631 429?

4 In 520 369,

a) which digit is in the hundred thousands place?
b) which digit is in the thousands place?
c) which digit is in the hundreds place?

5 In 463 217,

a) the digit 3 is in the ____ place and its value is ____.
b) the digit 4 is in the ____ place and its value is ____.

6 What is the value of the digit 6 in each of these numbers?

a) 302 006 **b)** 702 601 **c)** 617 284

7 What are the missing numbers?

a) 106 400 = 100 000 + ____ + 400
b) 324 816 = 300 000 + ____ + 4000 + 800 + 10 + 6

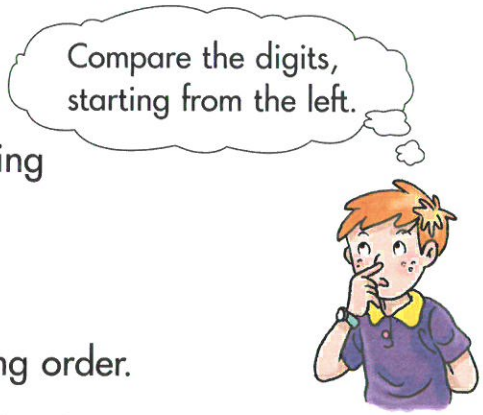
AB 5A Part 1, Activity 1.1

8 a) What number is 100 000 more than 235 825?
b) What number is 100 000 less than 160 198?

9 a) What number is 10 000 more than 460 840?
b) What number is 10 000 more than 193 628?
c) What number is 10 000 less than 875 390?
d) What number is 10 000 less than 406 381?

10 Compare the numbers 134 862, 132 861, 140 099 and 140 860.

a) Which number is the smallest?
b) Which number is the greatest?
c) Arrange the numbers in increasing order.



11 Arrange these numbers in decreasing order.

a) 238 956, 248 609, 228 956, 247 609
b) 504 317, 494 715, 506 713, 495 628

12 What are the missing numbers?

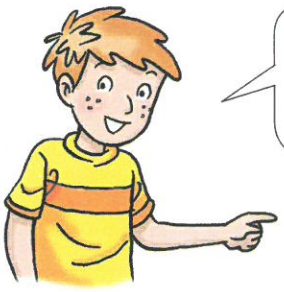
a) 128 500, 129 000, ☐, ☐, 130 500
b) 332 715, 322 715, 312 715, ☐, ☐
c) 584 878, 584 978, ☐, ☐, 585 278
d) ☐, 607 348, 617 348, 627 348, ☐

13 Rearrange each set of digits to form the greatest and the smallest possible 6-digit numbers.

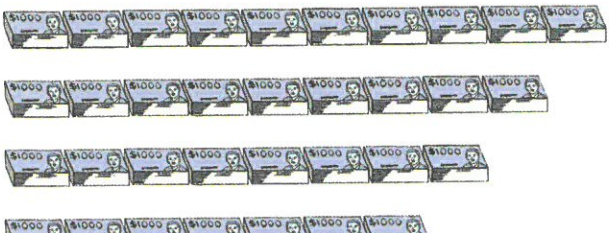
a) 8, 9, 3, 4, 2, 1
b) 1, 0, 1, 6, 5, 4

AB 5A Part 1, Activity 1.2

Millions



$2 000 000 will be spent on upgrading the bus interchange.



1 000 000

900 000

800 000

700 000

600 000

500 000

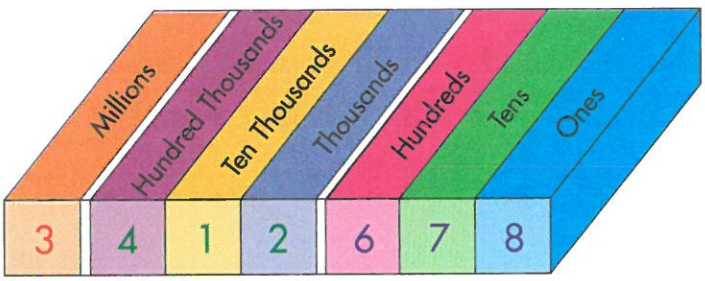
400 000

300 000

200 000

100 000

1 000 000 = 1000 thousands = 1 million
2 000 000 = 2 million



We read 3 412 678 as three million, four hundred and twelve thousand, six hundred and seventy-eight.

1 Express in words.

a) 4 380 000 **b)** 5 815 900 **c)** 1 234 567

2 Express in figures.

a) Four million
b) Six million, one hundred and eighty thousand
c) Eight million, six hundred and eighteen thousand, nine hundred and fifteen

3 What are the missing numbers?

a) 1 750 000 = ☐ thousands
b) 2 145 000 = ☐ thousands

4 In 7 205 341,

a) the digit 7 is in the millions place and its value is ☐.
b) the digit 2 is in the ☐ place and its value is ☐.
c) the digit 3 has a value of ☐.

5 A report in January 2005 stated that the population of Singapore was about 4 351 000. Of this population, 3 554 000 were Singapore citizens and permanent residents. What are the missing numbers?

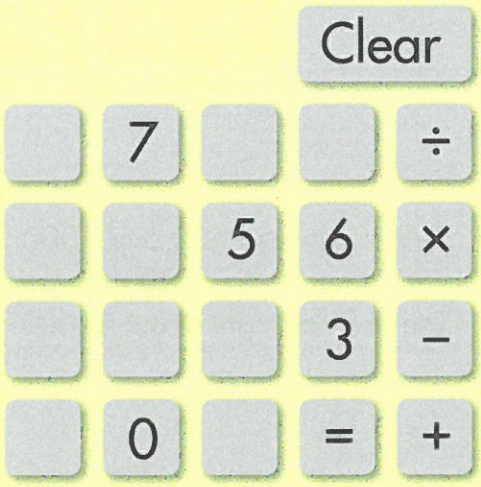
a) 4 351 000 = ☐ + 300 000 + 50 000 + 1000
b) 3 554 000 = 3 000 000 + ☐ + 50 000 + 4000

6 **a)** What number is 100 000 more than 986 000?
b) What number is 100 000 less than 1 034 500?

AB 5A Part 1, Activity 1.3

Broken Calculator Activities

A calculator is faulty.
Only the keys shown in the diagram below work.

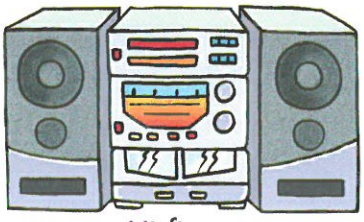


Use just these keys on your calculator. How would you get the following numbers displayed on your calculator?

- Fifty-eight thousand, seven hundred and sixty-three
- Six hundred and twenty-five thousand, three hundred and thirty-six
- Four hundred and seventy-three thousand, five hundred and six
- Two million, six hundred and thirty-seven thousand, one hundred and seventy-six

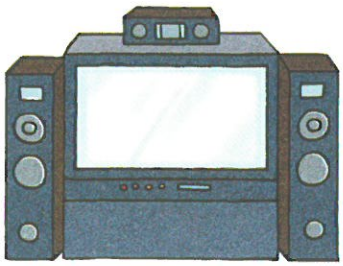
Give your friend another 7-digit number to key in using only the keys that work on the faulty calculator.

Approximation and Estimation



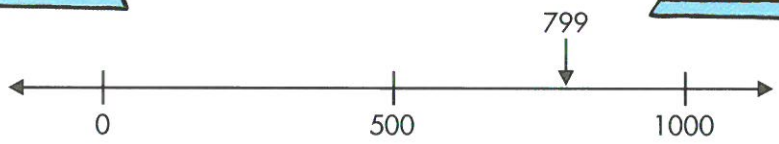
Hi-fi set

$799



Home theatre set

$12 500



799 is between 500 and 1000.
799 is nearer to 1000 than to 500.
The hi-fi set costs about $1000.

Aini rounds off $799 to the **nearest thousand** dollars.
$799 is **approximately** $1000.
$799 ≈ $1000

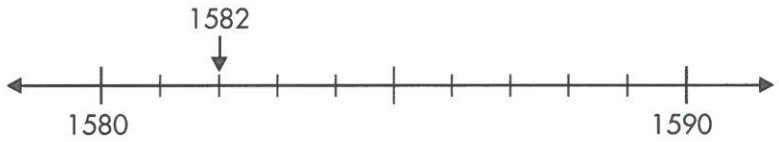
How much does the home theatre set cost when rounded off to the nearest thousand dollars?

$12 500 ≈ $

My Notes

- We use ≈ to represent 'approximately equal to'.
- To round off a number to the nearest thousand, study the digit in the hundreds place.
  If it is 5 or greater than 5, round up.
  If it is smaller than 5, round down.

1 There were 1582 entries for the lucky draw in a supermarket. Round off the number of entries to the nearest ten.

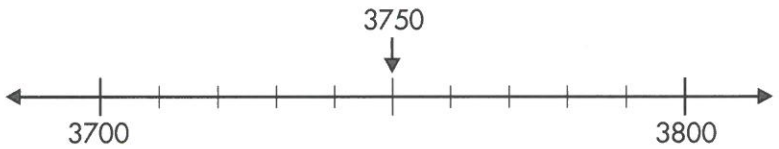


1582 ≈ ☐

2 Round off each number to the nearest ten.

a) 861 **b)** 939 **c)** 1007 **d)** 5999

3 There were 3750 visitors at a Science exhibition. Round off the number of visitors to the nearest hundred.

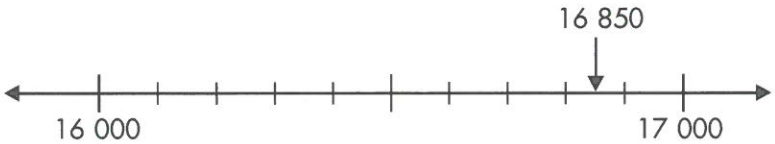


3750 ≈ ☐

4 Round off each number to the nearest hundred.

a) 821 **b)** 1550 **c)** 8925 **d)** 29 970

5 There were 16 850 visitors at a home appliances fair. Round off the number of visitors to the nearest thousand.

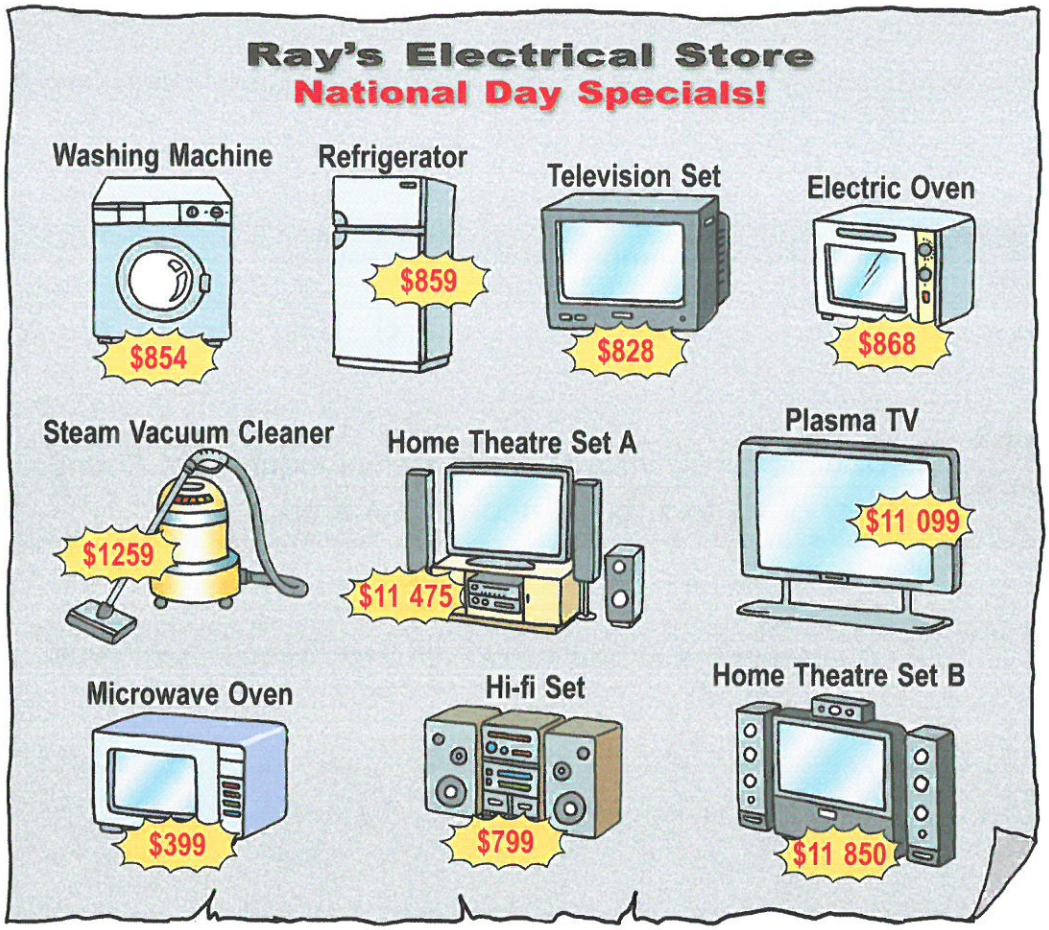


16 850 ≈ ☐

6 Round off each number to the nearest thousand.

a) 15 860 **b)** 49 130 **c)** 529 500 **d)** 786 400

7 The prices of some electrical appliances are listed below.



Which item did each person buy?

Name	Approximate amount paid	Item bought
Ali	$850 (rounded off to the nearest $10)	
Ambrose	$11 500 (rounded off to the nearest $100)	
Vanessa	$11 000 (rounded off to the nearest $1000)	
Chye Ming	$12 000 (rounded off to the nearest $1000)	
Jane	$800 (rounded off to the nearest $100)	

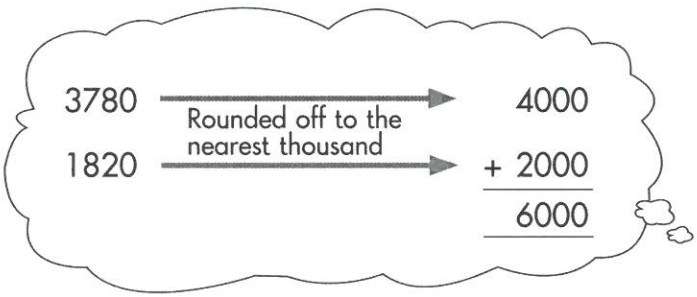
8 The number of tourists who visited Singapore in a particular month was 630 000 when rounded off to the nearest thousand. What could the actual number of tourists be?

AB 5A Part 1, Activity 1.4

9 Round off each number to the nearest thousand. Then estimate the value of each of the following:

a) 3780 + 1820 ≈ 4000 + 2000

= ☐



b) 5640 − 2190 ≈ ☐

c) 8600 + 7420 ≈ ☐

d) 5260 − 4500 ≈ ☐

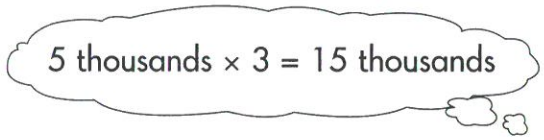
10 Mr Simon spent these amounts of money when he bought his three-room flat.

Item	Amount
Price of flat	$142 550
Renovation	$ 18 810
Furniture	$ 9485
Electrical appliances	$ 6250

Round off each amount to the nearest $1000. Estimate the difference between the amount of money he spent on furniture and electrical appliances.

11 Find the value of each of the following:

a) 5000×3
b) 8000×6
c) 6000×4
d) 7000×5



12 a) Estimate the value of 2939×6.

$2939 \times 6 \approx 3000 \times 6$

$= \square$

$2939 \times 6 \approx \square$

b) Estimate the value of 4975×7.

$4975 \times 7 \approx 5000 \times 7$

$= \square$

$4975 \times 7 \approx \square$

13 Estimate the value of each of the following:

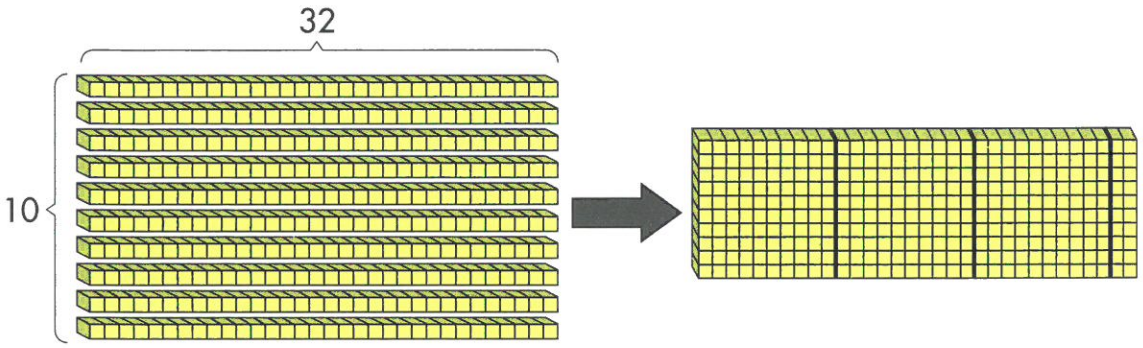
a) 8653×5
b) 4730×7
c) 7329×8
d) 8099×9

14 David had \$815. He received \$264 during Chinese New Year. He spent \$563 on a digital camera. Round off each amount to the nearest \$100. Then estimate the amount of money he had left.

15 Twice as many girls as boys visited an amusement park. There were 8898 boys. Round off the number of boys to the nearest thousand. Then estimate the total number of children who visited the amusement park.

AB 5A Part 1, Activity 1.5

Multiplying by Tens, Hundreds and Thousands



$32 \times 10 = 320$

$32 \times 10 = 320$

32 × 10 = 32 tens
32 tens = 320

$32 \times 100 = 3200$

32 × 100 = 32 hundreds
32 hundreds = 3200

$32 \times 1000 = 32\,000$

32 × 1000 = 32 thousands
32 thousands = 32 000

My Notes

Given number	Multiply by	Product
32	10	320
32	100	3200
32	1000	32 000

What is 320 × 1000?

1 Multiply.

a) 6×10 b) 81×10 c) 30×100

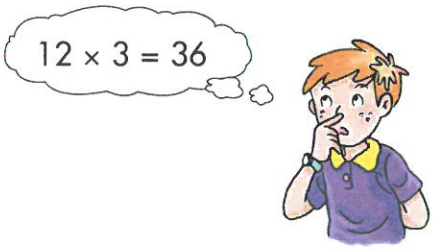
d) 427×100 e) 201×1000 f) 1921×1000

2 a) Multiply 12 by 30.

$12 \times 30 = 12 \times 3 \times 10$

$= \square \times 10$

$= \square$

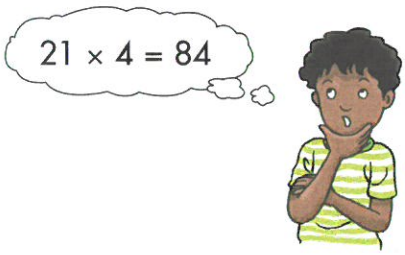


b) Multiply 21 by 400.

$21 \times 400 = 21 \times 4 \times 100$

$= \square \times 100$

$= \square$

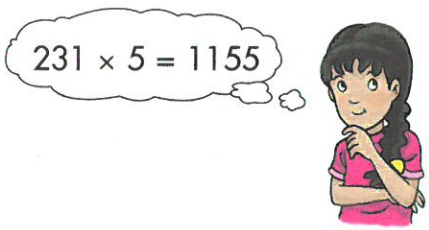


c) Multiply 231 by 5000.

$231 \times 5000 = 231 \times 5 \times 1000$

$= \square \times 1000$

$= \square$



3 Multiply 210 by 2. Then find the value of each of the following:

a) 210×20 b) 210×200 c) 210×2000

4 Multiply.

a) 80×50 b) 50×20 c) 70×600

d) 200×1000 e) 4000×30 f) 3000×3000

AB 5A Part 1, Activity 1.6

5 Multiply.

a) $28 \times 5 = 14 \times 2 \times 5$

$= 14 \times \square$

$= \square$

b) $8 \times 25 = 2 \times 4 \times 25$

$= 2 \times \square$

$= \square$

6 Multiply.

a) $86 \times 50 = 43 \times 2 \times 50$
$= 43 \times \square$
$= \square$

b) $65 \times 20 = 13 \times 5 \times 20$
$= 13 \times \square$
$= \square$

c) 38×5

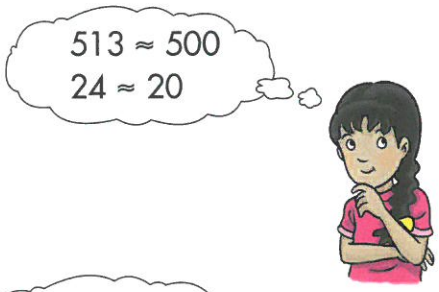
d) 12×25

e) 148×50

f) 215×20

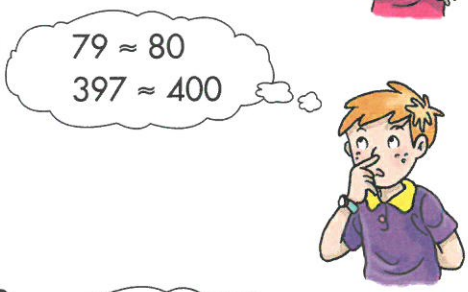
7 **a)** Estimate the value of 513×24.

$513 \times 24 \approx 500 \times 20$
$= \square$
$513 \times 24 \approx \square$



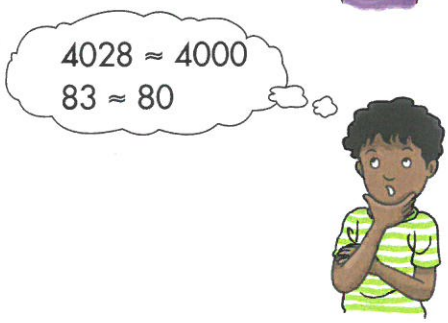
b) Estimate the value of 79×397.

$79 \times 397 \approx 80 \times 400$
$= \square$
$79 \times 397 \approx \square$



c) Estimate the value of 4028×83.

$4028 \times 83 \approx 4000 \times 80$
$= \square$
$4028 \times 83 \approx \square$



8 Estimate the value of each of the following:

a) 393×19

b) 206×36

c) 41×483

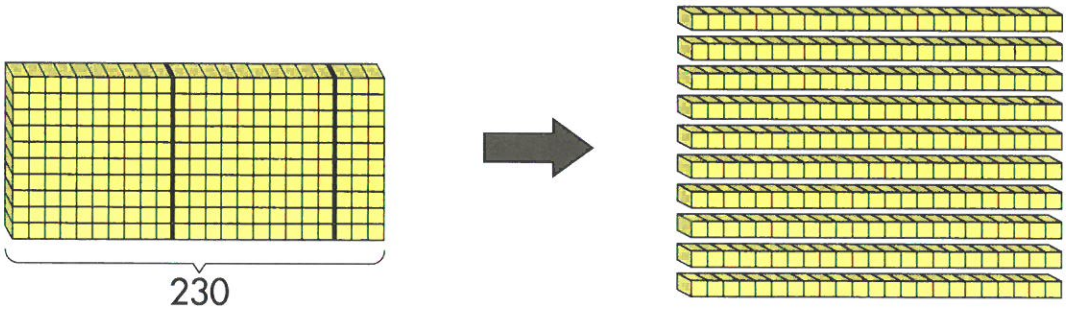
d) 2931×24

e) 98×7102

f) 21×999

AB 5A Part 1, Activity 1.7

Dividing by Tens, Hundreds and Thousands



230 ÷ 10 = 23

230 ÷ 10 = 23

230 = 23 tens
23 tens ÷ 10 = 23

2300 ÷ 100 = 23

2300 = 23 hundreds
23 hundreds ÷ 100 = 23

23 000 ÷ 1000 = 23

23 000 = 23 thousands
23 thousands ÷ 1000 = 23

My Notes

Given number	Divide by	Quotient
230	10	23
2300	100	23
23 000	1000	23

What is 23 000 ÷ 100?

1 Find the quotients.

a) $60 \div 10$	**b)** $600 \div 100$	**c)** $6000 \div 1000$
d) $800 \div 10$	**e)** $8000 \div 100$	**f)** $80\,000 \div 1000$
g) $960 \div 10$	**h)** $9600 \div 100$	**i)** $96\,000 \div 1000$

2 **a)** Divide 360 by 30.

$360 \div 30 = 360 \div 10 \div 3$

$= 36 \div 3$

$=$ ☐

b) Divide 1600 by 400.

$1600 \div 400 = 1600 \div 100 \div 4$

$=$ ☐ $\div 4$

$=$ ☐

c) Divide 20 000 by 500.

$20\,000 \div 500 = 20\,000 \div 100 \div 5$

$=$ ☐ $\div 5$

$=$ ☐

d) Divide 45 000 by 5000.

$45\,000 \div 5000 = 45\,000 \div 1000 \div 5$

$=$ ☐ $\div 5$

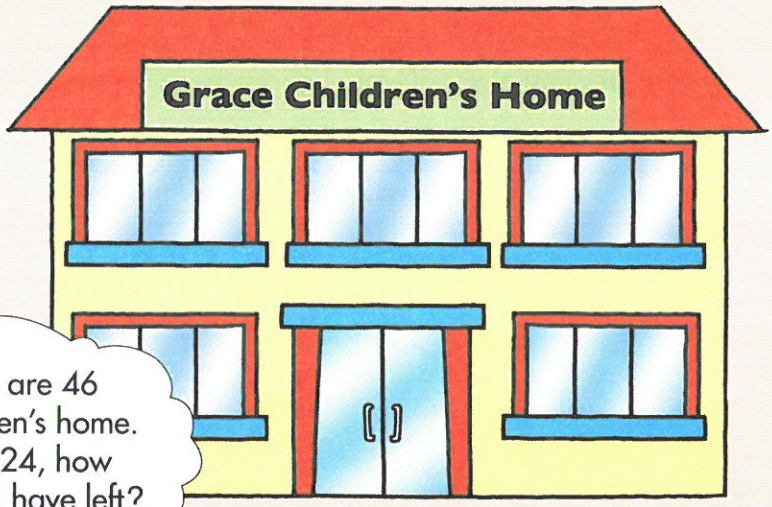
$=$ ☐

3 Divide.

a) $240 \div 40$	**b)** $2800 \div 70$
c) $1500 \div 500$	**d)** $5400 \div 600$
e) $28\,000 \div 4000$	**f)** $32\,000 \div 8000$

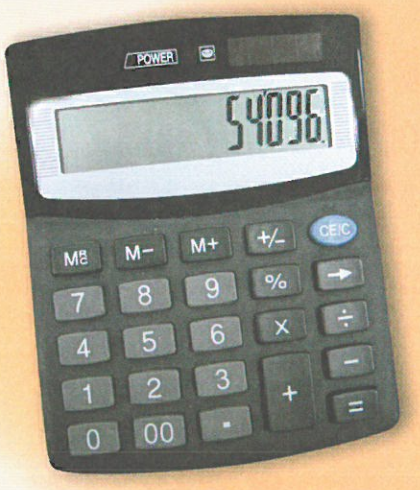
AB 5A Part 1, Activity 1.8 & Let's Find Out 1

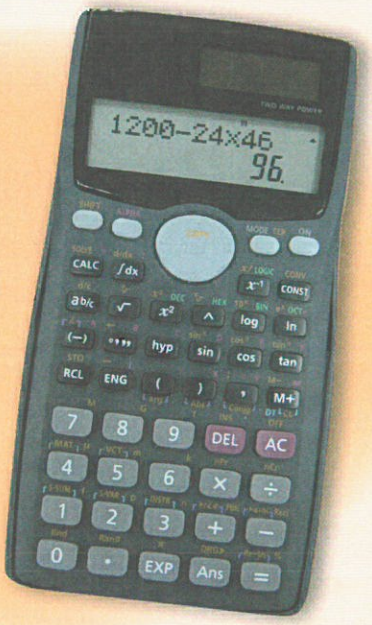
2 Operations On Whole Numbers



I have $1200. There are 46 children in the children's home. If I give each child $24, how much money would I have left?

Press C 1200 − 24 × 46 =





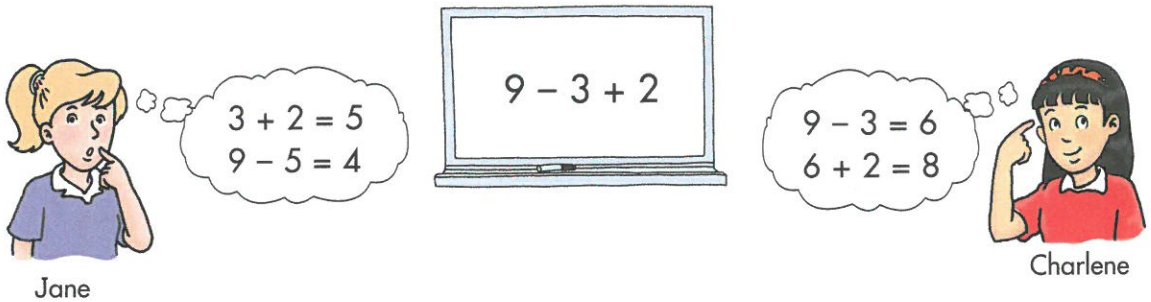
Work out your own solution to the problem.
Which calculator shows the correct answer?
How can you tell?

AB 5A Part 1, Recall 2

Order of Operations

For each of the following, who do you think is correct? Why?

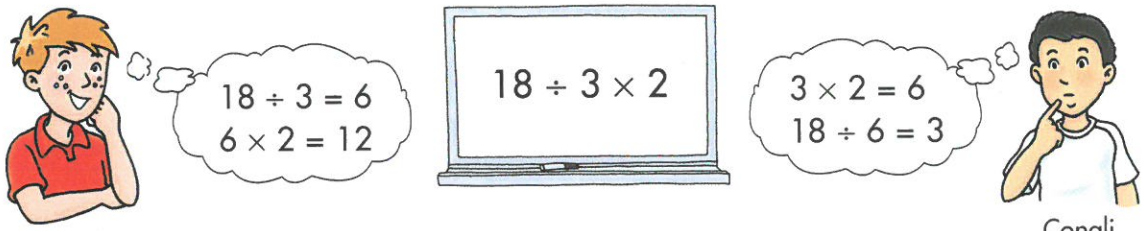
Ali had 9 keychains. He gave 3 away before collecting another 2. How many keychains had Ali left?



Jane

Charlene

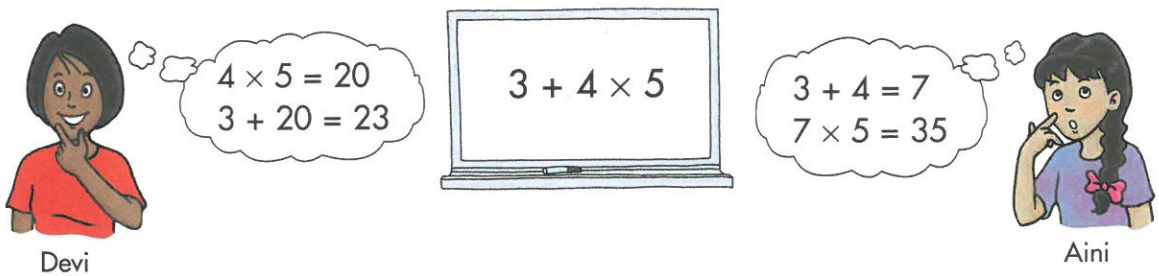
Cindy had 18 erasers. She packed them equally into 3 boxes. David took 2 of the boxes. How many erasers did he take?



David

Congli

Mariam had 3 stickers. She bought 4 packets of stickers. Each packet had 5 stickers. How many stickers did she have altogether?



Devi

Aini

Order of operations is important in Mathematics. To make certain that we have the correct answer, we must follow some simple rules.

The rules for order of operations:

Step 1 Do all multiplication and/or division from left to right.

Step 2 Do all addition and/or subtraction from left to right.

1 Find the values.

a) $12 + 6 + 11 = 18 + 11$
$= \square$

b) $15 - 5 - 8 = 10 - 8$
$= \square$

c) $30 - 10 + 14$

d) $43 + 57 - 35$

2 Find the values.

a) $3 \times 2 \times 4 = 6 \times 4$
$= \square$

b) $50 \div 5 \div 2 = 10 \div 2$
$= \square$

c) $10 \times 4 \div 5$

d) $16 \div 2 \times 3$

3 Find the values.

a) $16 + 5 \times 9 = 16 + 45$
$= \square$

b) $8 \times 6 + 12 = 48 + 12$
$= \square$

c) $8 \times 4 - 17$

d) $16 - 10 \div 2$

4 Find the values.

a) $8 \times 7 - 2 \times 3 = 56 - 6$
$= \square$

b) $19 + 48 \div 8 \times 2 = 19 + 6 \times 2$
$= 19 + 12$
$= \square$

c) $80 - 40 \div 8 + 20$

d) $17 + 3 \times 10 - 15$

5 Which one of the following is **correct**?

a) $12 + 48 \div 4 \times 3 = 60 \div 4 \times 3 = 15 \times 3 = 45$

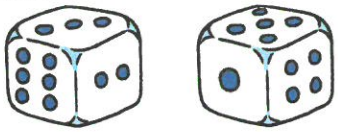
b) $12 + 48 \div 4 \times 3 = 60 \div 4 \times 3 = 60 \div 12 = 5$

c) $12 + 48 \div 4 \times 3 = 12 + 12 \times 3 = 12 + 36 = 48$

d) $12 + 48 \div 4 \times 3 = 12 + 12 \times 3 = 24 \times 3 = 72$

AB 5A Part 1, Activity 2.1

6 David threw a pair of dice twice. He got the following set of numbers for both throws.



Which one of the following is the correct way to find his total score?

A

$2 \times 3 + 5$

$= \square + 5$

$= \square$

B

$2 \times (3 + 5)$

$= 2 \times \square$

$= \square$

We use brackets to show which part of the operation should be done first.

His total score is $\square$.

7 Find the values.

a) $74 - (61 - 9)$

b) $74 - 61 - 9$

c) $74 - (61 + 9)$

d) $74 - 61 + 9$

8 Find the values.

a) $48 \div 6 \div 2$

b) $48 \div (6 \div 2)$

c) $48 \div 3 \times 2$

d) $48 \div (3 \times 2)$

9 Find the values.

a) $14 + (61 - 51)$

b) $80 - (47 + 13)$

c) $(80 - 45) + 50$

d) $(9 \times 5) - (4 \times 5)$

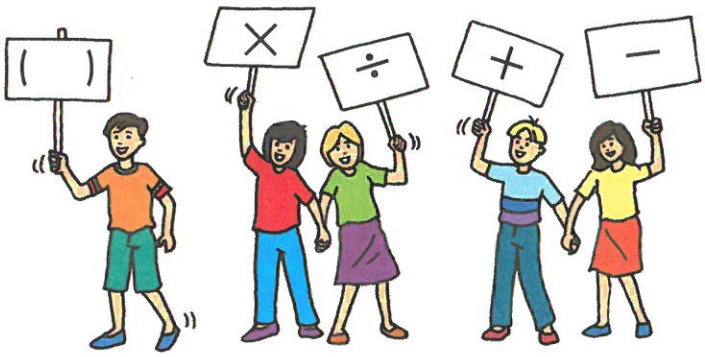
e) $(57 - 32) \div 5 \times 2$

f) $90 \div 10 \times (19 + 11)$

10 Aini and Caili have 3 red and 5 blue hair clips each. Which one of the following number sentences represents the total number of hair clips that the girls have?

a) $3 + 5 \times 2$

b) $(3 + 5) \times 2$



My Notes

Standard order of operations:

Step 1 Do the operations in brackets.

Step 2 Multiply and/or divide from left to right.

Step 3 Add and/or subtract from left to right.

$36 - 6 \times 5 + 4 =$ ☐

Press C 36 − 6 × 5 + 4 =

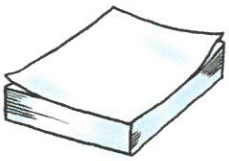
Remember to clear the screen on your calculator before keying in any entries.

What is displayed?
Does your calculator compute the answer following the order of operations?
Do you get the same answer when you use a basic calculator or the built-in calculator in a handphone? Explain.

Use your calculator to check the answers you obtained for question 9 on page 23.

AB 5A Part 1, Activity 2.2

Multiplication Using Calculator



There are 490 sheets in the stack of paper shown.
How many sheets are there in 21 such stacks?

I don't have a calculator. I do it this way.

1 Multiply 490 by 1:

$$\begin{array}{r} \mathbf{490} \\ \times \quad \mathbf{21} \\ \hline \mathbf{490} \end{array}$$

2 Multiply 490 by 20:

$$\begin{array}{r} \mathbf{490} \\ \times \quad \mathbf{21} \\ \hline 490 \\ \mathbf{9800} \end{array}$$

490×20
$= 490 \times 2 \times 10$
$= 9800$

3 Add:

$$\begin{array}{r} 490 \\ \times \quad 21 \\ \hline \mathbf{490} \\ \mathbf{9800} \\ \hline \mathbf{10290} \end{array}$$

$490 \times 21 = 10\,290$

There are 10 290 sheets in 21 such stacks of paper.

$490 \times 21 \approx 500 \times 20$
$= 10\,000$
My estimation is that there are about 10 000 sheets.

I use a calculator to get my answer.

Press [C] 490 [×] 21 [=]

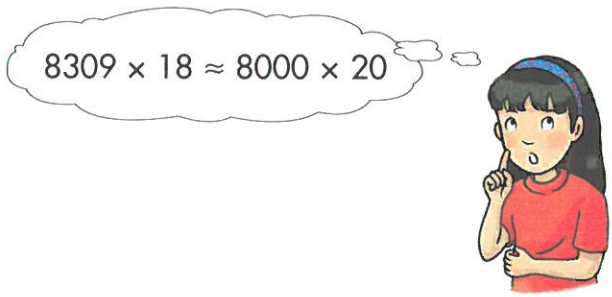
Display: 10290

Which method do you prefer? Why?

Use a calculator to solve these problems.

1 Multiply. Use estimation to check if your answers are reasonable.

a) 8309 × 18
b) 1029 × 24
c) 4263 × 37
d) 2697 × 46
e) 5917 × 68



2 A supplier imports 1088 pairs of skates. The cost of each pair is $27. How much will it cost the supplier to import all the skates?

3 ABC Company ordered LCD projectors to be sold to 176 schools. Each projector cost $2899. How much did all the projectors cost?

4 A school has set aside $60 000 for buying computers. Does it have enough money to buy 42 computers at $1452 each? Show your working.

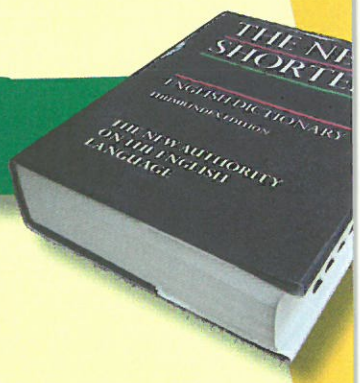
5 The 6 key on a calculator is faulty. How do you use the calculator to find the value of 16 × 28?

AB 5A Part 1, Activity 2.3

Fun with Maths

How Many?

How many words are there in a dictionary?



There are about 19 words in a line.
There are about 76 lines in a page.
There are about 1323 pages.
The dictionary has about ____ words.

Do you know?

1 Your heart beats about 72 times in 1 minute.
About how many times does it beat in...

a) 1 hour?

b) 1 day?

c) 1 week?

With every heartbeat, about 150 ml of blood are pumped into the arteries. About how many litres of blood are pumped into the arteries in 1 hour?

2 If you sleep about 8 hours a day, how many hours would you sleep in...

a) a week?

b) a year?

c) a lifetime (about 85 years)?

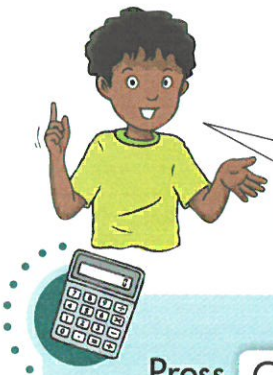
Division Using Calculator

Mr Tan needs 12 sheets of paper to print a set of examination papers.

a) How many sets of examination papers can he print with 500 sheets of paper?

$500 \div 12 =$ ☐

$$\begin{array}{r} 41 \\ 12\overline{)\,500} \\ 48 \\ \hline 20 \\ 12 \\ \hline 8 \end{array}$$



Press [C] [500] [÷] [12] [=]

Display: 41.66666667

He can print 41 sets.

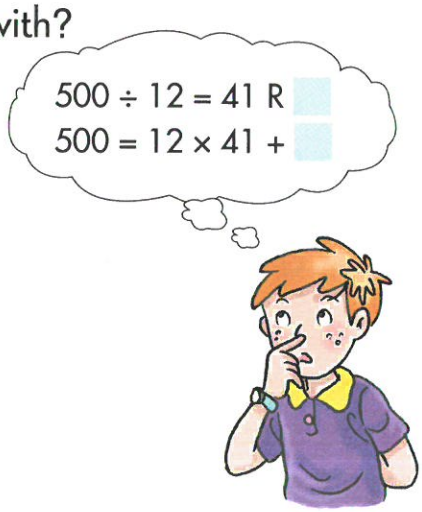
b) How many sheets of paper will he be left with?

$12 \times 41 = 492$

He needs 492 sheets to print 41 sets.

$500 - 492 =$ ☐

He will be left with ☐ sheets of paper.



1 Divide.

a) 1875 ÷ 15 **b)** 2730 ÷ 21

c) 4216 ÷ 34 **d)** 5544 ÷ 42

2 Divide. Round off your answer to the nearest whole number.

a) 3357 ÷ 16 **b)** 4935 ÷ 24

c) 6718 ÷ 31 **d)** 9941 ÷ 33

Complete the statement.

9784 ÷ **32** = **305** R 24

When dividing a 4-digit number by a 2-digit number, if the first 2 digits of the dividend is greater than the divisor, the quotient will be a ___-digit number.

3 Divide.

a) 1050 ÷ 14 **b)** 2187 ÷ 27

c) 3045 ÷ 35 **d)** 4002 ÷ 58

4 Divide. Round off your answer to the nearest whole number.

a) 2052 ÷ 25 **b)** 3026 ÷ 32

c) 4118 ÷ 46 **d)** 5869 ÷ 63

Complete the statement.

6412 ÷ **73** = **87** R 61

When dividing a 4-digit number by a 2-digit number, if the first 2 digits of the dividend is smaller than the divisor, the quotient will be a ___-digit number.

5 Mrs Lee tries to distribute 580 stickers equally among 32 pupils.

a) How many stickers will each pupil get?
b) How many stickers will be left over?

6 A manager prepared $1800 to pay his workers. After paying each worker $62, he had less than $10 left.

a) How many workers did the manager pay?
b) What was the exact amount left?

7 Each school bus is allowed to carry at most 48 pupils.

a) How many buses are needed to carry 864 pupils?
b) How many buses are needed to carry 884 pupils?

8 Mr Jalil buys backpacks to sell at his sporting goods store. Each backpack costs $79. How many backpacks can he buy for $2000?

9 Ms Chan pays $7370 for 55 pairs of sports shoes of the same type. How much does one pair of sports shoes cost?

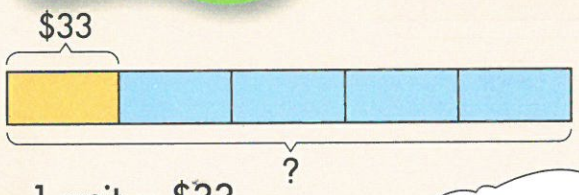
10 In the Botanic Gardens, some workers plant 9500 seedlings in seedling boxes. Each box holds 144 seedlings. How many boxes are used?

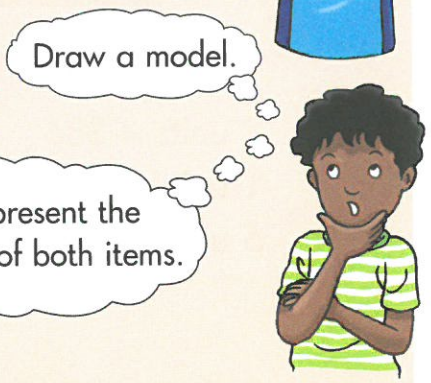
AB 5A Part 1, Activity 2.5

Solving Word Problems

1 Charles had $200. He paid $33 for a T-shirt and 4 times as much for a pair of soccer boots. How much money had Charles left?

Method 1





1 unit = $33

5 units = 5 × $33

= $ ____

Charles paid $ ____ altogether.

$200 − $ ____ = $ ____

Charles had $ ____ left.

Method 2

4 × $33 = $ ____

The soccer boots cost $ ____.

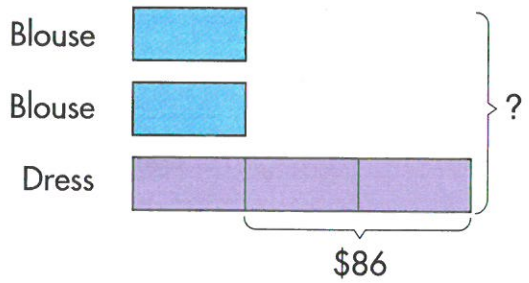
$33 + $ ____ = $ ____

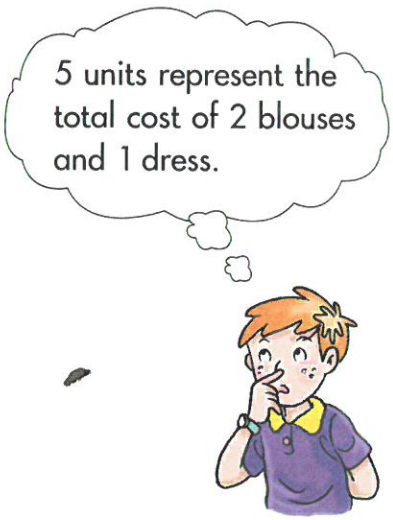
Charles paid $ ____ altogether.

$200 − $ ____ = $ ____

Charles had $ ____ left.

2 Baifen bought 2 similar blouses and a dress. The dress cost 3 times as much as each blouse. If the dress cost $86 more than each blouse, how much did Baifen spend altogether?

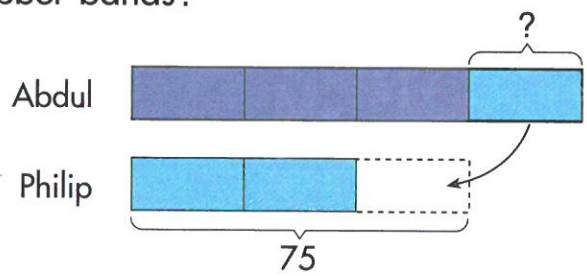




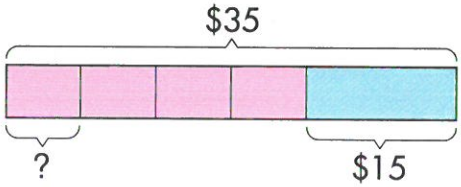
2 units = $86
1 unit = $
5 units = 5 × $
= $

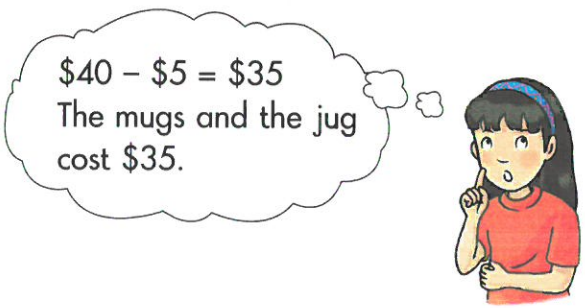
Baifen spent $ altogether.

3 Abdul has twice as many rubber bands as Philip. How many rubber bands must Abdul give Philip so that each of them will have 75 rubber bands?

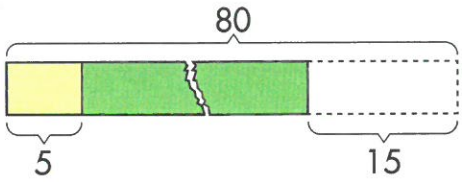


4 Omar bought 4 similar mugs and a jug. He paid the cashier $40 and received $5 change. If the jug cost $15, find the cost of each mug.

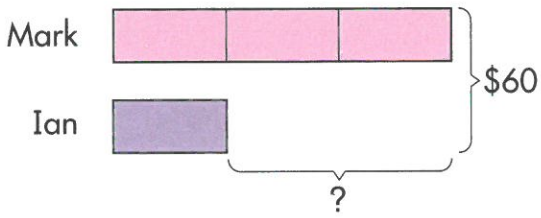




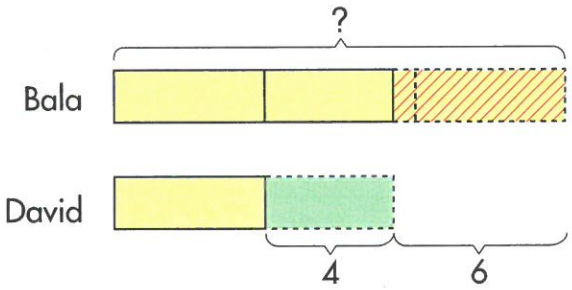
5 Mr Osman bought 80 pears. He threw away 15 rotten ones and sold the rest at 5 for $3. How much money did he receive?



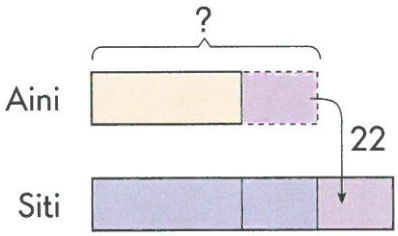
6 Each week, Mark receives 3 times as much pocket money as Ian. Their total weekly pocket money is $60. Find the difference in the weekly pocket money that they receive.



7 Bala had 3 times as many marbles as David. After Bala gave 6 marbles away and David bought 4 more marbles, they had the same number of marbles. How many marbles had Bala at first?



8 Aini and Siti had the same amount of money. After Aini gave $22 to Siti, Siti had twice as much money as Aini. How much money did each girl have at first?



9 David is 12 years older than his sister. What is David's age when he is 3 times as old as his sister?

10 The table shows the postage rates for sending letters within Singapore.

More than 20 g but not more than 40 g.

More than 100 g but not more than 250 g.

Mass step not over	Postage
20 g	25¢
40 g	31¢
100 g	50¢
250 g	80¢
500 g	$1.00

a) What is the postage for a letter with a mass of 80 g?

Postage for 80 g = ____ ¢

b) What is the total postage for two letters with masses of 70 g and 180 g? ____ ¢

11 The table shows the overseas postal rates.

Destination	Mass step	Postage
Australia, Japan and New Zealand	First 20 g	$1.10
	Every additional 10 g	35¢

What is the postage for a letter with a mass of 50 g mailed to Australia?

Postage for first 20 g = 110¢

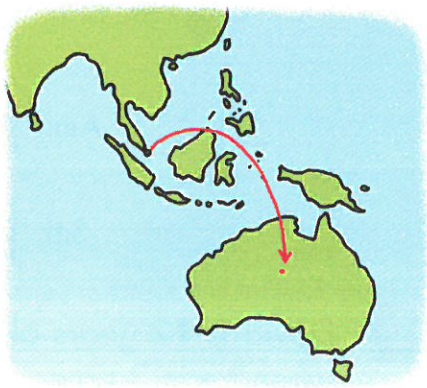
Postage for next 30 g = ____ ¢ × 3

= ____ ¢

Total postage = ____ ¢ + ____ ¢

= ____ ¢

= $ ____

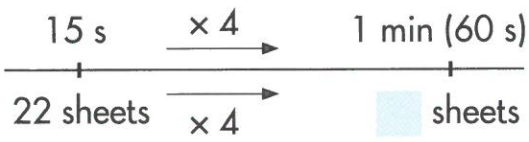


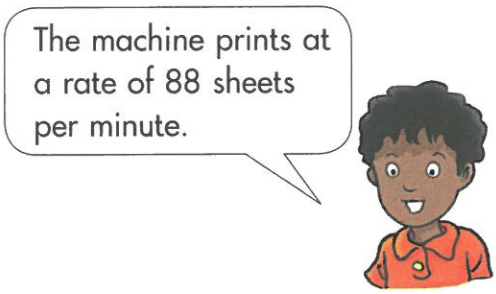
AB 5A Part 1, Activity 2.6

You may use a calculator to solve these problems.

12 A photocopying machine prints 22 sheets in 15 seconds.

a) How many sheets does it print in 1 minute?



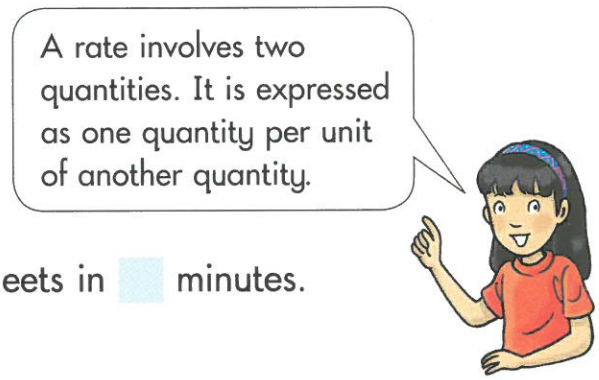


15 s ⟶ 22 sheets
60 s ⟶ 22 × 4 = 88 sheets

The machine prints ____ sheets in 1 minute.

b) At this rate, how long does it take to print 1056 sheets?

88 sheets ⟶ 1 min
1056 sheets ⟶ ____ min



The machine prints 1056 sheets in ____ minutes.

13 Leon bought 4 cans of soft drink and 5 bars of chocolate. Doreen bought 5 cans of soft drink and 4 bars of chocolate. Each can of soft drink costs 80¢. Each can of soft drink costs twice as much as each bar of chocolate. How much money did they spend altogether?

Cost of 1 can of soft drink = 80¢
Cost of 1 bar of chocolate = 80¢ ÷ 2 = ____ ¢

Name	Number of cans × Unit cost	Number of bars of chocolate × Unit cost	Amount spent
Leon	4 × 80¢ = ____	5 × 40¢ = ____	____
Doreen	____	____	____
		Total	____

14 The table shows the charges for water consumption.

Amount of water used	Charge
Up to 40 m^3	117¢ per m^3
Above 40 m^3	140¢ per m^3

a) The Sim family used 32 m^3 of water in March. What was the cost of the family's water consumption?

Charge for 32 m^3 of water = 117¢ × 32

= ¢

= $

The family paid $.

b) The Pang family used 54 m^3 of water in April. What was the cost of the family's water consumption?

Charge for first 40 m^3 of water = 117¢ × 40

= ¢

= $

Charge for next 14 m^3 of water = 140¢ × 14

= ¢

= $

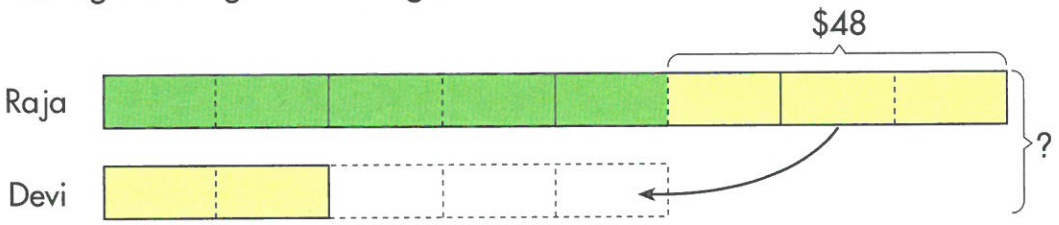
Total charge for 54 m^3 of water = $ + $

= $

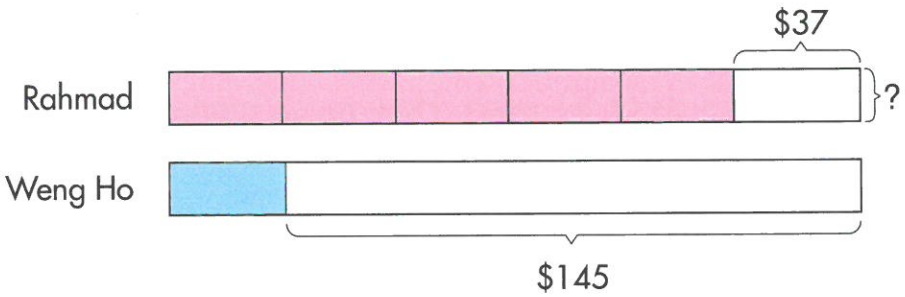
The family paid $.

c) The Tan family used 43 m^3 of water in December. What was the cost of the family's water consumption?

15 Raja has 4 times as much money as Devi. If Raja gives Devi $48, they will have the same amount of money. How much money do they have altogether?

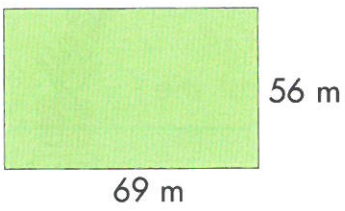


16 Rahmad and Weng Ho had the same amount of money. After Rahmad bought a shirt for $37 and Weng Ho bought a pair of roller shoes for $145, Rahmad had 5 times as much money as Weng Ho. How much money did each boy have at first?



17 Kassim has to pay a total of $9832 for his home renovation. He has to pay a deposit of $4000 first followed by 36 monthly instalments. How much is each instalment?

18



A showroom measures 69 m by 56 m. Mr Ong wants to tile the floor of the showroom. If each 1-m^2 tile costs $24, how much would it cost Mr Ong to tile the floor of the showroom?

19 A supermarket chain imported 68 boxes of oranges. Each box contained 48 oranges. The oranges were packed into bags of 5. How many bags of oranges were there? How many oranges were left over?

AB 5A Part 1, Activity 2.7

20 Mr Sammy had 17 m of cloth. He cut the cloth into pieces of 3 m each. He sold each 3-metre piece at $48 and the leftover at a discount. He collected $260 altogether. How much did he sell the leftover cloth for?

17 ÷ 3 = ☐ R ☐
There are ☐ of such 3-m pieces of cloth.
Total selling price of 3-m pieces = ☐ ○ $48 = $☐
Selling price of the leftover cloth = $260 ○ $☐ = $☐
He sold the leftover cloth for $☐.

21 Allan packed 256 postcards into packets of 12.

a) How many packets did he get?
b) He sold all the packets at $4 each and the remaining postcards at $1 each. How much money did he collect?

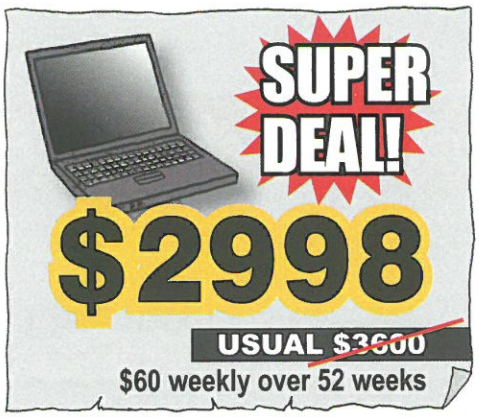
22 At a concert, 120 tickets at $125 each and 110 tickets at $68 each were sold. How much money was collected altogether?

23 A fruiterer bought 3050 oranges. He threw away 125 rotten ones and packed the rest into boxes of 25. How much money did the fruiterer collect if all his boxes of oranges were sold at $12 each?

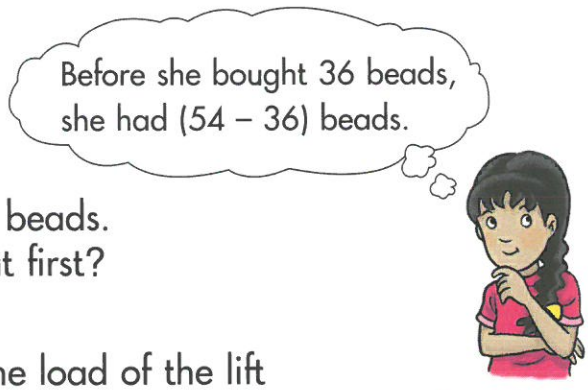
24 A gardener paid a total of $3255 for 125 pots of orchids and 115 pots of roses. Each pot of orchids cost $15. If all the pots of roses cost the same, what would the cost of each pot of roses be?

25 Mrs Lim's salary is $2750 per month. Her husband's monthly salary is $250 less than hers. How much is their combined salary for a year?

26 Mr Tan paid cash for the laptop. Mrs Lin paid for a similar laptop by weekly instalments. Who paid more? How much more?



27 Devi had some beads. After sharing her beads equally among 34 classmates and herself, she bought another 36 beads. She then had 54 beads. How many beads had she at first?



28 A lift alarm triggers when the load of the lift exceeds 540 kg. Mr Osman wants to move some tiles to the sixth floor. His mass is 58 kg and the mass of each box of tiles is 18 kg. What is the greatest number of boxes of tiles that he can carry into the lift without triggering the alarm?

29 The table below shows the output of a product line in a certain week.

Day	Mon	Tue	Wed	Thu	Fri	Sat	Total
Output	782	469	?	?	?	294	2630

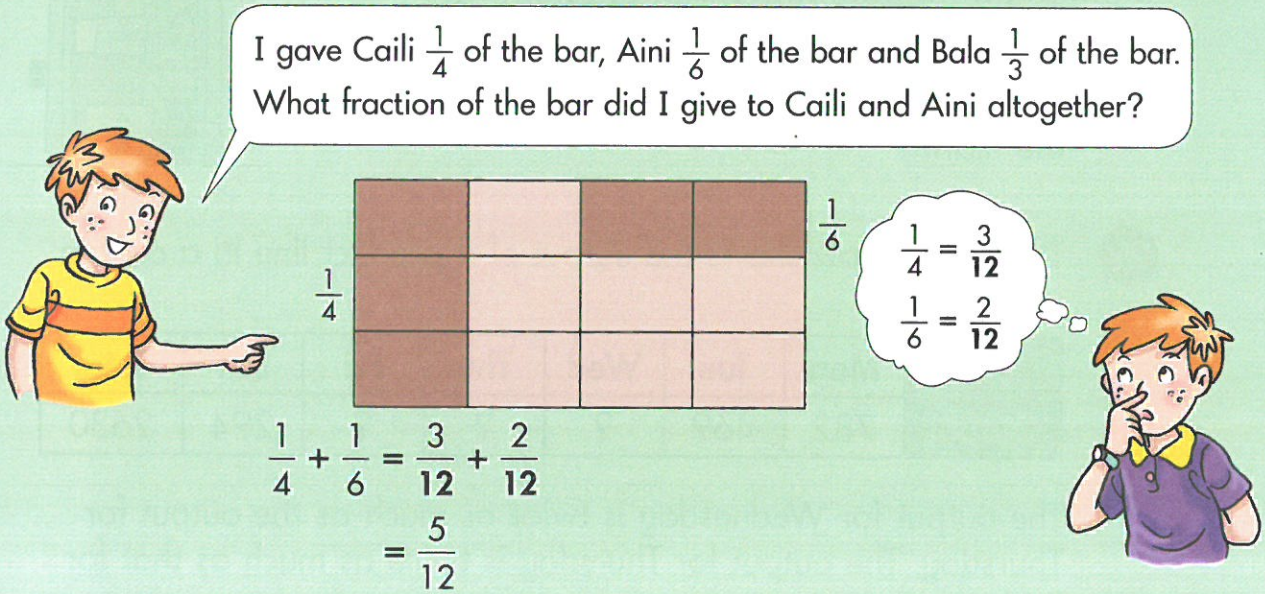
The output for Wednesday is twice as much as the output for Thursday. The output for Thursday is twice as much as that for Friday.
What is the output for Wednesday?

AB 5A Part 1, Activity 2.8 & Let's Find Out 2

3 Fractions

Addition and Subtraction of Unlike Fractions

David had a bar of chocolate.



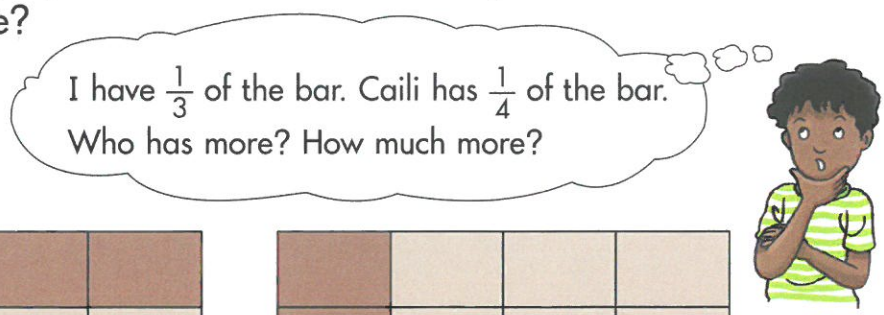
$$\frac{1}{4} + \frac{1}{6} = \frac{3}{12} + \frac{2}{12}$$

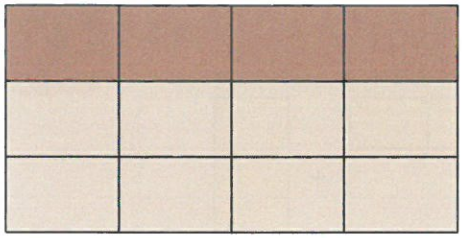
$$= \frac{5}{12}$$

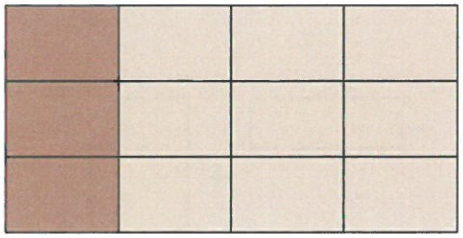
David gave $\frac{5}{12}$ of the bar of chocolate to Caili and Aini altogether.

AB 5A Part 1, Recall 3

Who got a larger portion of the chocolate bar, Bala or Caili? How much more?







$\frac{1}{3} = \frac{4}{\mathbf{12}}$ (× 4 above, × 4 below)

$\frac{1}{4} = \frac{3}{\mathbf{12}}$ (× 3 above, × 3 below)

12 is a common multiple of 3 and 4.

$$\frac{1}{3} - \frac{1}{4} = \frac{4}{\mathbf{12}} - \frac{3}{\mathbf{12}}$$
$$= \frac{1}{12}$$

Bala had $\frac{1}{12}$ more of the bar than Caili.

My Notes

$\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{6}$ do not have the same denominator.
They are **unlike fractions**.

$\frac{4}{12}$, $\frac{3}{12}$ and $\frac{2}{12}$ have the same denominator.
They are **like fractions**.

To add or subtract unlike fractions:

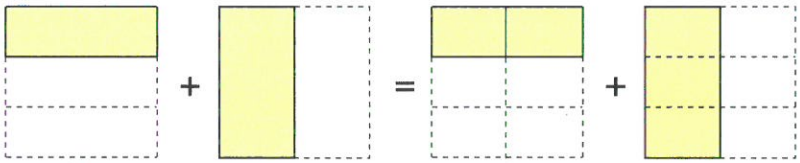
Step 1 Change them to like fractions (use the idea of equivalent fractions).

Step 2 Add or subtract the like fractions.

1 a) Add $\frac{1}{3}$ and $\frac{1}{2}$.

Change $\frac{1}{3}$ and $\frac{1}{2}$ to like fractions:

$\frac{1}{3} = \frac{2}{\mathbf{6}}$ $\frac{1}{2} = \frac{3}{\mathbf{6}}$



$\frac{1}{3} + \frac{1}{2} = \frac{2}{\mathbf{6}} + \frac{3}{\mathbf{6}}$

$= \square$

b) Add $\frac{1}{4}$ and $\frac{1}{3}$.

$\frac{1}{4} + \frac{1}{3} = \frac{\square}{\mathbf{12}} + \frac{\square}{\mathbf{12}}$

$= \square$

$\frac{\mathbf{1}}{\mathbf{4}} = \frac{2}{8} = \frac{3}{\mathbf{12}}$

$\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{\mathbf{12}}$

c) Add $\frac{3}{4}$ and $\frac{3}{5}$.

$\frac{3}{4} + \frac{3}{5} = \frac{\square}{\mathbf{20}} + \frac{\square}{\mathbf{20}}$

$= \frac{\square}{20}$

$= \square$

20 is a common multiple of 4 and 5.

$\frac{3}{4} = \frac{15}{\mathbf{20}}$ $\frac{3}{5} = \frac{12}{\mathbf{20}}$

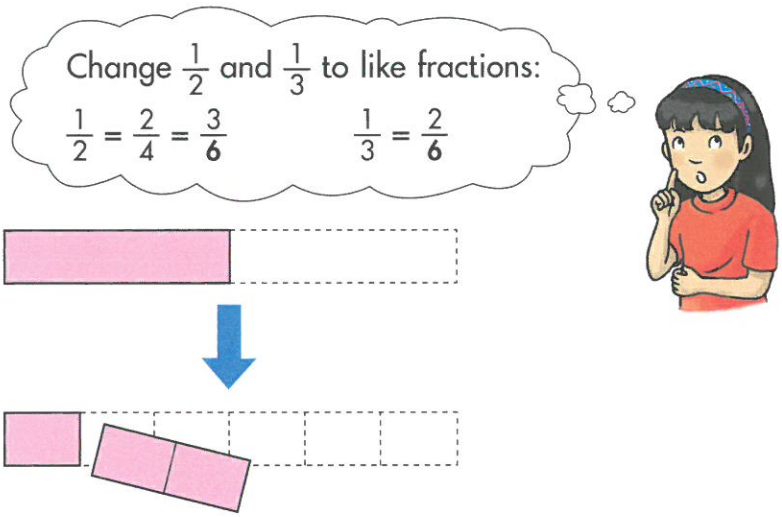
2 Add.

a) $\frac{2}{3} + \frac{1}{4}$ b) $\frac{1}{3} + \frac{3}{4}$ c) $\frac{1}{5} + \frac{3}{4}$

d) $\frac{2}{5} + \frac{2}{3}$ e) $\frac{5}{6} + \frac{1}{2} + \frac{2}{6}$ f) $\frac{2}{3} + \frac{5}{12} + \frac{8}{12}$

AB 5A Part 1, Activity 3.1

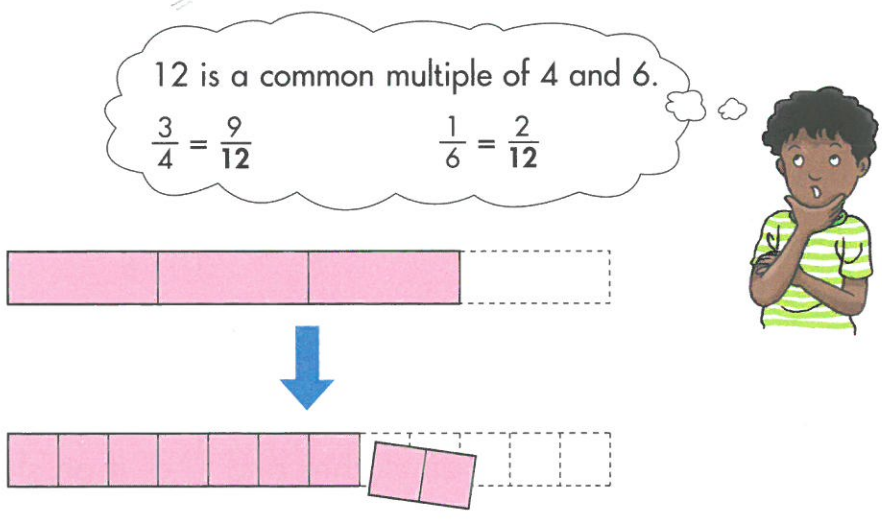
3 **a)** Subtract $\frac{1}{3}$ from $\frac{1}{2}$.



$\frac{1}{2} - \frac{1}{3} = \frac{\square}{6} - \frac{\square}{6}$

$= \square$

b) Subtract $\frac{1}{6}$ from $\frac{3}{4}$.



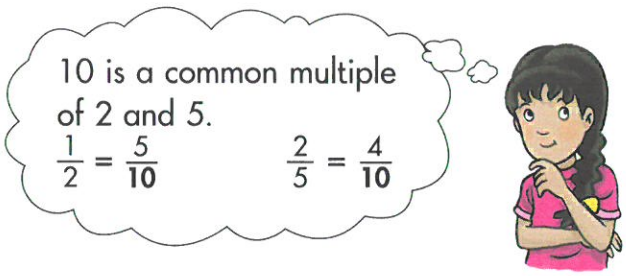
$\frac{3}{4} - \frac{1}{6} = \frac{\square}{12} - \frac{\square}{12}$

$= \square$

4 Subtract $\frac{2}{5}$ from $\frac{1}{2}$.

$\frac{1}{2} - \frac{2}{5} = \frac{\square}{10} - \frac{\square}{10}$

$= \square$



5 Subtract.

a) $\frac{2}{3} - \frac{1}{5}$

b) $\frac{5}{6} - \frac{1}{9}$

c) $\frac{7}{8} - \frac{5}{6}$

d) $\frac{4}{5} - \frac{1}{2}$

e) $\frac{7}{8} - \frac{1}{2} - \frac{1}{8}$

f) $\frac{4}{5} - \frac{1}{10} - \frac{2}{5}$

6 Subtract $\frac{2}{7}$ and $\frac{1}{3}$ from 1.

$1 - \frac{2}{7} - \frac{1}{3} = \frac{21}{21} - \frac{\square}{21} - \frac{\square}{21}$

$= \square$

7 Subtract.

a) $1 - \frac{2}{3} - \frac{1}{3}$

b) $1 - \frac{1}{3} - \frac{2}{5}$

AB 5A Part 1, Activity 3.2

8 Siti spent $\frac{2}{5}$ of her money on clothes and $\frac{1}{3}$ of it on shoes. What fraction of her money had she left?

9 Bala had a bar of chocolate. He ate $\frac{2}{3}$ of it and his brother ate $\frac{1}{4}$ of it. What fraction of the bar of chocolate was left?

10 There were some pizzas on a table. David ate $\frac{3}{4}$ of a pizza, his brother ate $\frac{1}{3}$ of a pizza and Caili ate $\frac{3}{4}$ of a pizza. How many pizzas did they eat altogether?

11 A PE lesson lasted 1 h. Bala spent $\frac{3}{5}$ h preparing for the NAPFA test, $\frac{1}{3}$ h playing soccer and the remaining time resting. How much time did he spend resting?

12 Mrs Lim has $\frac{6}{7}$ kg of flour. She uses $\frac{3}{4}$ kg of the flour to bake a cake.

a) How much flour has she left?

b) She buys another $\frac{1}{4}$ kg of flour. How much flour does she have now?

13 Bala ate $\frac{5}{8}$ of a regular-size pizza. David ate $\frac{7}{12}$ of another regular-size pizza. Who ate more pizza? How much more?

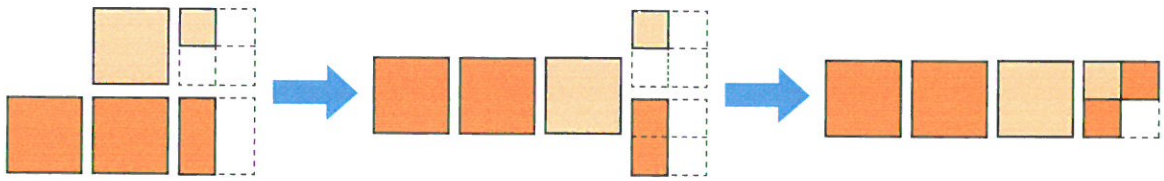
14 $\frac{2}{5}$ of the Primary 5 pupils in a school play badminton. Another $\frac{1}{6}$ of them play table tennis. What fraction of the Primary 5 pupils do not play either of these games?

AB 5A Part 1, Activity 3.3

Addition and Subtraction of Mixed Numbers

Mrs Singh bought $1\frac{1}{4}$ m of cloth to make a shirt and $2\frac{1}{2}$ m of cloth to make a dress.

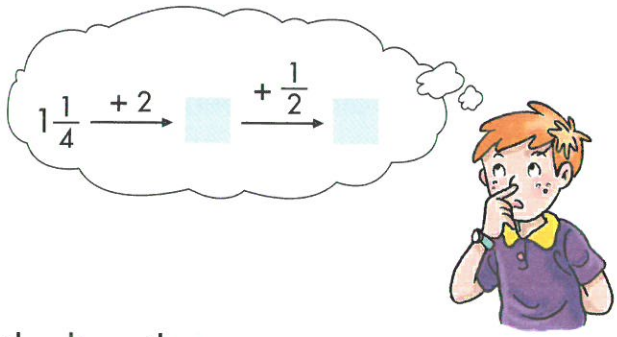
a) How much cloth did she buy altogether?



$$1\frac{1}{4} + 2\frac{1}{2} = 3\frac{1}{4} + \frac{1}{2}$$

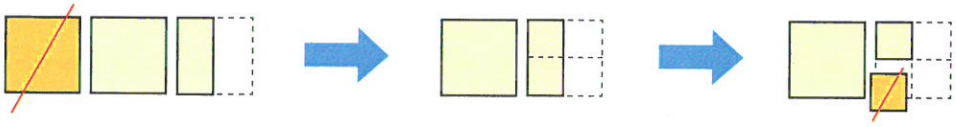
$$= 3\frac{1}{4} + \frac{\quad}{4}$$

$$= 3\frac{\quad}{4}$$



She bought ____ m of cloth altogether.

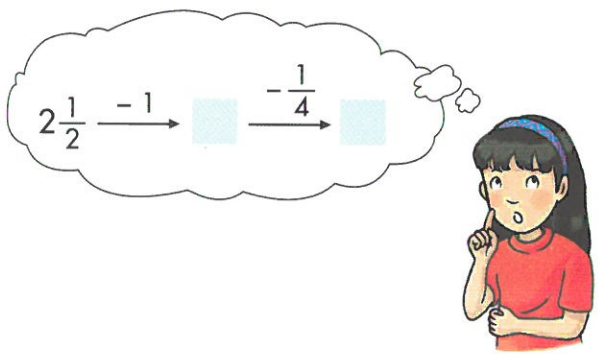
b) How much more cloth did Mrs Singh use to make the dress than the shirt?



$$2\frac{1}{2} - 1\frac{1}{4} = 1\frac{1}{2} - \frac{1}{4}$$

$$= 1\frac{\quad}{4} - \frac{1}{4}$$

$$= 1\frac{\quad}{4}$$



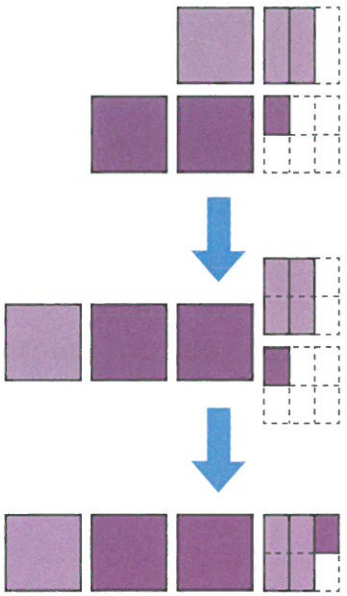
She used ____ m more cloth to make the dress than the shirt.

1 Add $1\frac{2}{3}$ and $2\frac{1}{6}$.

$$1\frac{2}{3} + 2\frac{1}{6} = 3\frac{2}{3} + \frac{1}{6}$$

$$= 3\frac{\square}{6} + \frac{1}{6}$$

$$= \square$$



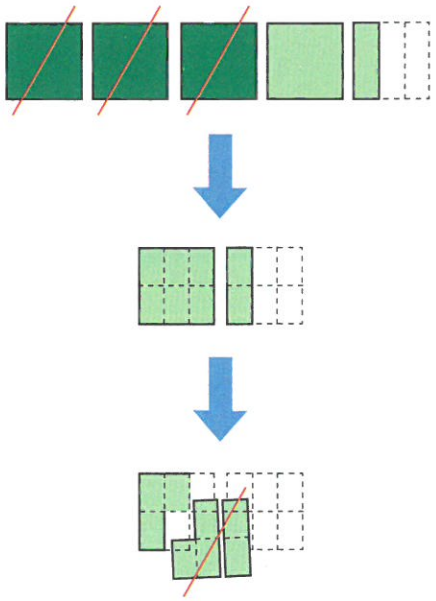
2 Subtract $3\frac{5}{6}$ from $4\frac{1}{3}$.

$$4\frac{1}{3} - 3\frac{5}{6} = 1\frac{\square}{6} - \frac{5}{6}$$

$$= \frac{\square}{6} - \frac{5}{6}$$

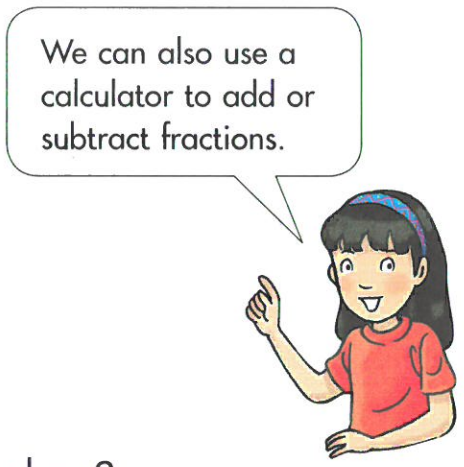
$$= \frac{\square}{6}$$

$$= \square$$



3 a) Show $\frac{3}{5}$ on your calculator.

Which keys do you press?



b) Show $3\frac{1}{2}$ on your calculator.

Which keys do you press?

In what order do you press these keys?

4 Use the **fraction** key in your calculator to find the following values.

a) $5\frac{3}{4} + \frac{5}{8}$

Press C $5\frac{3}{4}$ + $\frac{5}{8}$ =

Display: $\frac{\quad}{\quad}$

b) $\frac{1}{9} + 2\frac{1}{3}$

c) $2\frac{5}{8} - \frac{3}{4}$

d) $3 - \frac{1}{7}$

5 Use the **fraction** key in your calculator to find the following values.

a) $2\frac{5}{8} + 4\frac{1}{3}$

Press C $2\frac{5}{8}$ + $4\frac{1}{3}$ =

Display: $\square\frac{\square}{\square}$

b) $5\frac{3}{8} - 2\frac{7}{12}$

c) $3\frac{1}{4} - 2\frac{5}{6}$

AB 5A Part 1, Activity 3.4

6 Bala took part in a 10 km run. He was $1\frac{3}{5}$ km from the finishing line. How far had he run?

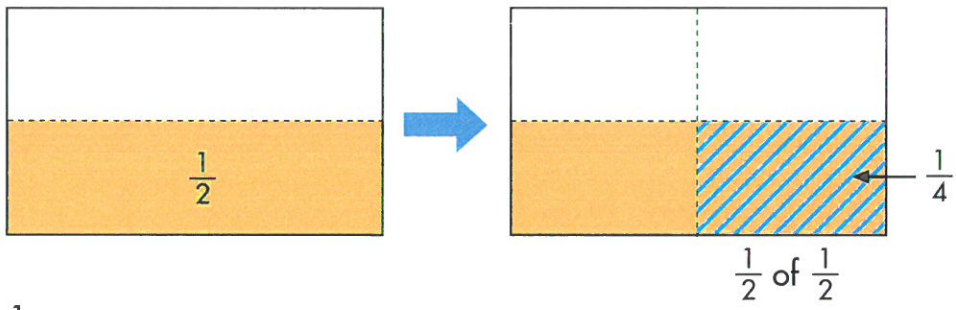
7 David jogged $2\frac{1}{3}$ km and Ali jogged $3\frac{7}{8}$ km. Who jogged a longer distance? How much longer?

8 Mr Gopal bought some cans of paint to paint his house. He used $6\frac{2}{5}$ cans of paint for his living room, $3\frac{1}{3}$ cans of paint for his kitchen and $4\frac{1}{5}$ cans of paint for his bedroom. How many cans of paint did he use altogether?

AB 5A Part 1, Activity 3.5

Product of Proper Fractions

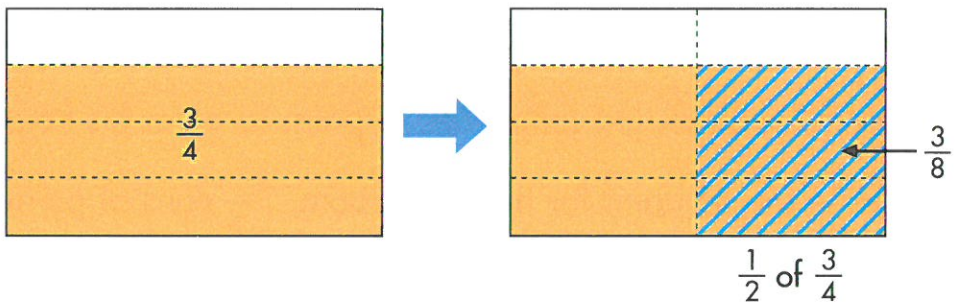
Fold a rectangular piece of paper into halves. Colour $\frac{1}{2}$ of it orange. Fold and draw blue stripes over $\frac{1}{2}$ of the orange portion. What fraction of the rectangle has blue stripes drawn over orange?



$\frac{1}{2}$ of $\frac{1}{2} = \frac{1}{4}$

$\frac{1}{4}$ of the rectangle has blue stripes drawn over orange.

Fold another rectangular piece of paper into quarters. Colour $\frac{3}{4}$ of it orange. Fold and draw blue stripes over $\frac{1}{2}$ of the orange portion. What fraction of the rectangle has blue stripes drawn over orange?

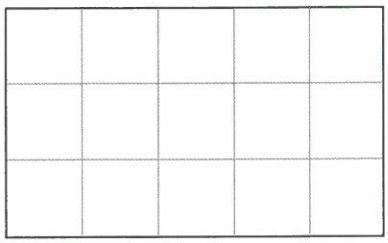


$\frac{1}{2}$ of $\frac{3}{4}$ = ____

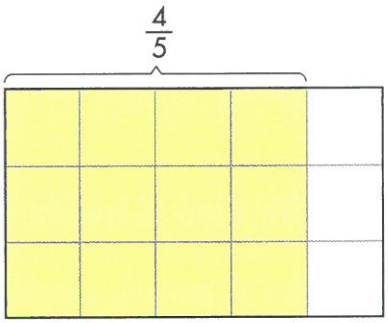
____ of the rectangle has blue stripes drawn over orange.

What is the value of $\frac{2}{3}$ of $\frac{4}{5}$?

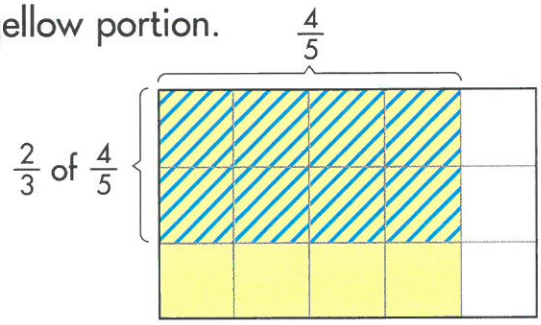
- Draw a rectangle on a piece of grid paper.



- Colour $\frac{4}{5}$ of the rectangle yellow.



- Draw blue stripes over $\frac{2}{3}$ of the yellow portion.



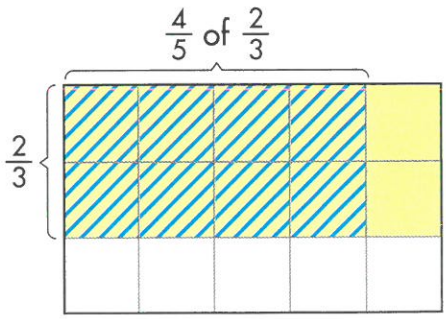
What fraction of the rectangle has blue stripes drawn over yellow?

$\frac{2}{3}$ of $\frac{4}{5}$ = ☐

$\frac{2}{3} \times \frac{4}{5}$ = ☐

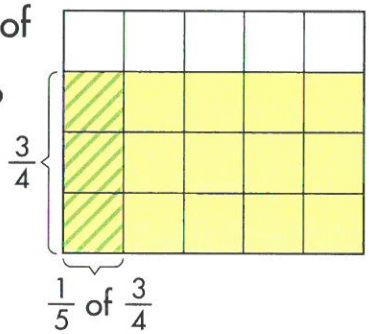
What is the value of $\frac{4}{5}$ of $\frac{2}{3}$?

$\frac{4}{5} \times \frac{2}{3}$ = ☐



AB 5A Part 1, Activity 3.6

1 Mr Lim grows flowering plants on $\frac{3}{4}$ of his plot of land. $\frac{1}{5}$ of the flowering plants are roses. What fraction of his plot of land is used for growing roses?

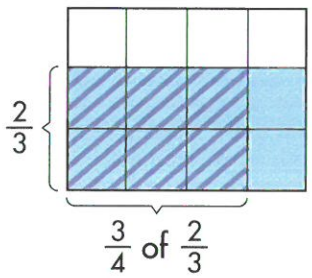


$\frac{1}{5}$ of $\frac{3}{4} = \frac{1}{5} \times \frac{3}{4}$

$=$ ____

____ of his plot of land is used for growing roses.

2 Mr Neo is awake $\frac{2}{3}$ of the day. He spends $\frac{3}{4}$ of the time that he is awake working. What fraction of the day does he work?



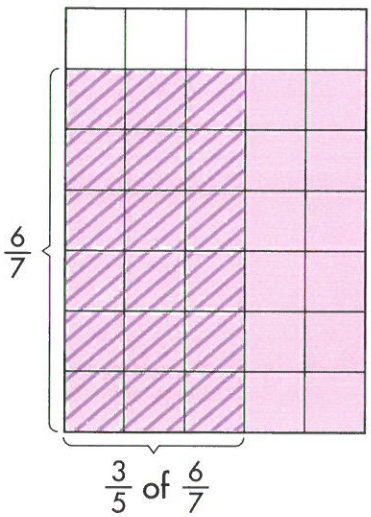
$\frac{3}{4}$ of $\frac{2}{3} = \frac{3}{4} \times \frac{2}{3}$

$= \frac{6}{12}$

$=$ ____

He works ____ of the day.

3 David spent $\frac{6}{7}$ of his pocket money. $\frac{3}{5}$ of the amount spent was on food. What fraction of his pocket money did he spend on food?



$\frac{3}{5}$ of $\frac{6}{7} = \frac{3}{5} \times \frac{6}{7}$

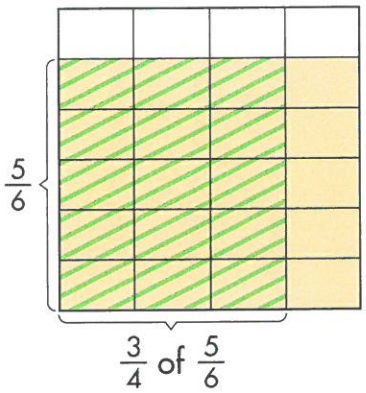
$=$ ____

He spent ____ of his pocket money on food.

4 Find the area of a rectangle measuring $\frac{3}{4}$ m by $\frac{5}{6}$ m.

$\frac{3}{4} \times \frac{5}{6} =$ ☐

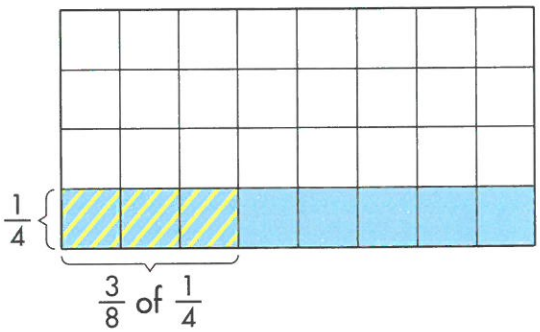
The area of the rectangle is ☐ m^2.



5 Find the value of each of the following:

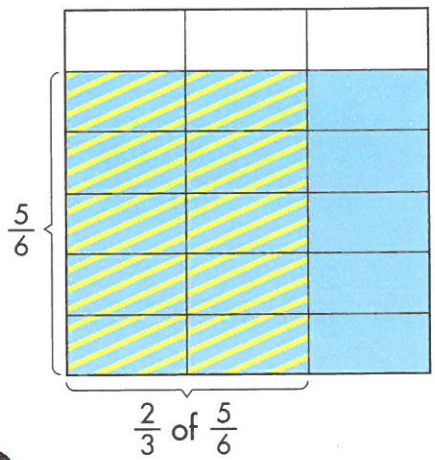
a) $\frac{3}{8} \times \frac{1}{4} = \frac{3 \times 1}{8 \times 4}$

$=$ ☐



b) $\frac{2}{3} \times \frac{5}{6} = \frac{\square \times \square}{3 \times 6}$

$=$ ☐



My Notes

When multiplying fractions, multiply the numerators and then multiply the denominators. Write the answer in the simplest form.

6 Find the value of each of the following:

a) $\frac{1}{4} \times \frac{1}{2}$

b) $\frac{1}{3} \times \frac{2}{5}$

c) $\frac{2}{3} \times \frac{4}{7}$

d) $\frac{2}{9} \times \frac{4}{5}$

e) $\frac{3}{8} \times \frac{3}{5}$

f) $\frac{2}{5} \times \frac{7}{9}$

7 Find the product of $\frac{3}{8}$ and $\frac{4}{9}$.

Method 1

$$\frac{3}{8} \times \frac{4}{9} = \frac{3 \times 4}{8 \times 9}$$

$$= \frac{12}{72}$$

$$= \square$$

Reduce to the simplest form.

Method 2

$$\frac{{}^{1}\cancel{3}}{{}_{2}\cancel{8}} \times \frac{\cancel{4}^{1}}{\cancel{9}_{3}} = \frac{1}{2 \times 3}$$

$$= \frac{\square}{6}$$

Which method do you prefer? Why?

8 Multiply. Express each answer in its simplest form.

a) $\frac{1}{2} \times \frac{2}{5}$

b) $\frac{3}{4} \times \frac{5}{9}$

c) $\frac{5}{8} \times \frac{4}{5}$

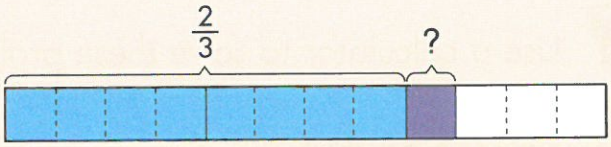
d) $\frac{3}{4} \times \frac{2}{9}$

9 Defu had $\frac{1}{2}$ m of fishing line. He used $\frac{1}{3}$ of it to tie a hook. What length of the fishing line did he use to tie the hook?

10 Mr Osman had $\frac{3}{4}$ kg of charcoal. He used $\frac{2}{5}$ of it to barbecue some satay. How much charcoal did he use?

11 $\frac{2}{3}$ of a pole is painted blue. $\frac{1}{4}$ of the remaining part of the pole is painted purple. What fraction of the pole is painted purple?

Method 1



From the model, ☐ of the pole is painted purple.

Method 2

$1 - \frac{2}{3} =$ ☐

☐ of the pole is not painted blue.

$\frac{1}{4} \times$ ☐ = ☐

☐ of the pole is painted purple.

12 Mr Lee had 1 l of orange juice. He drank $\frac{3}{5}$ l of orange juice and Mrs Lee drank $\frac{5}{8}$ of the remaining juice. How much orange juice did she drink?

13 What is the area of a piece of rectangular cardboard which measures $\frac{4}{5}$ m by $\frac{3}{4}$ m?

AB 5A Part 1, Activity 3.7

Product of Improper Fractions

Use the **fraction** key in your calculator to find the product of $\frac{9}{7}$ and $\frac{8}{9}$.

Press C $\frac{9}{7}$ × $\frac{8}{9}$ =

Display: ▢ —

Use a calculator to solve these problems.

1 Find the product.

a) $\frac{3}{2} \times \frac{3}{4}$

b) $\frac{4}{3} \times \frac{2}{3}$

c) $\frac{7}{6} \times \frac{5}{2}$

d) $\frac{10}{3} \times \frac{6}{5}$

2 Complete the fraction square.

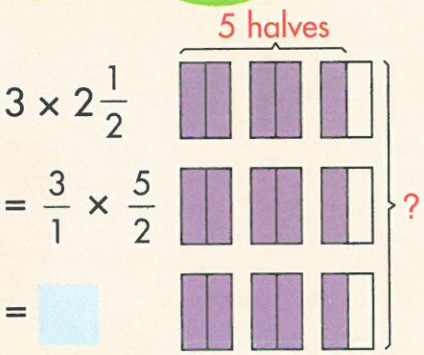
$\frac{8}{3}$	×	$\frac{6}{5}$	=	▢
×	▢	×	▢	×
$\frac{5}{4}$	×	$\frac{8}{7}$	=	▢
=	▢	=	▢	=
▢	×	▢	=	▢

AB 5A Part 1, Activity 3.8

Product of a Mixed Number and a Whole Number

Lynn works $2\frac{1}{2}$ h a day for 3 days at a supermarket. How many hours does she work altogether?

Method 1



Method 2

$3 \times 2\frac{1}{2} =$ ☐ — ☐

Press C 3 × $2\frac{1}{2}$ =

Display: ☐ — ☐

She works ☐ h altogether.

Use a calculator to solve these problems.

1 The length of a square is $6\frac{3}{4}$ m. Find its perimeter.

2 A rectangle measures $8\frac{3}{5}$ m by 6 m. What is its area?

3 The distance around a small field is $25\frac{4}{5}$ m. A man walked 4 complete rounds of this field. How far did he walk?

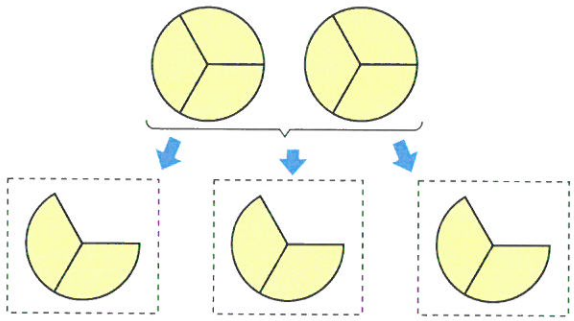
4 Mrs Lee requires $3\frac{3}{4}$ m of cloth for a curtain. How much cloth would she need for 7 such curtains?

5 Bala drinks about $2\frac{7}{8}$ l of water per day. How much water would Bala drink in 31 days?

AB 5A Part 1, Activity 3.9

Concept of Fraction as Division

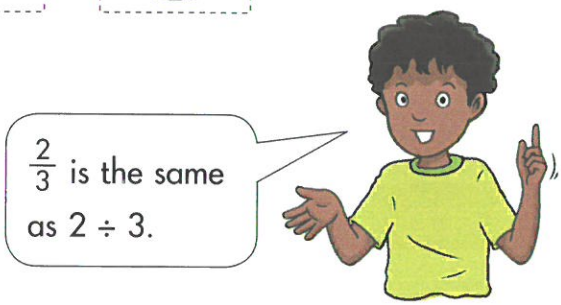
Share 2 chocolate cakes equally among 3 children. What fraction of a chocolate cake does each child get?



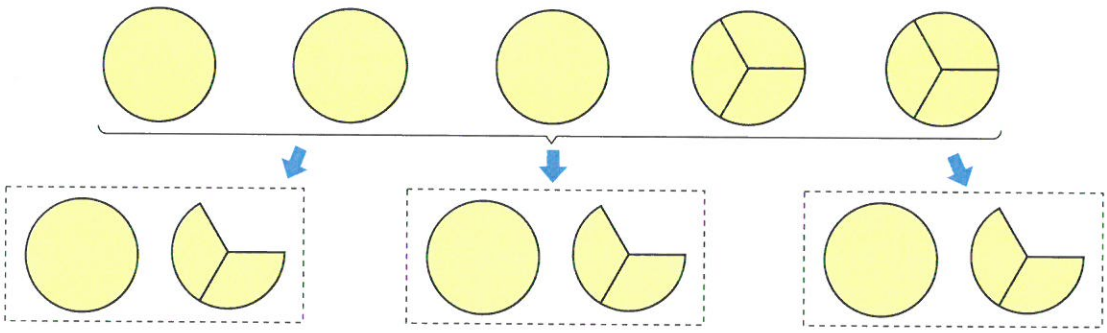
$2 \div 3 = \frac{1}{3}$ of 2

$= \frac{2}{3}$

Each child gets $\frac{2}{3}$ of a cake.



Share 5 chocolate cakes equally among 3 children. What fraction of a chocolate cake does each child get?

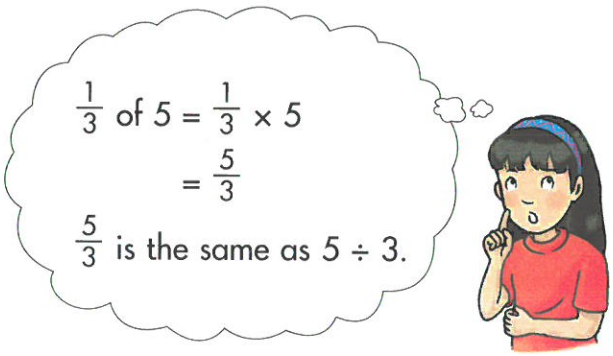


$5 \div 3 = \frac{1}{3}$ of 5

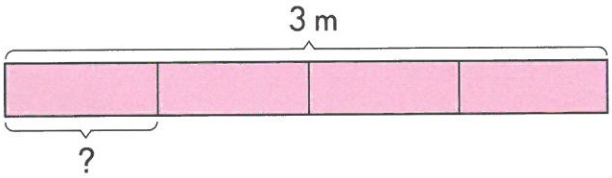
$= \frac{5}{3}$

$= 1\frac{2}{3}$

Each child gets $1\frac{2}{3}$ cakes.



1 A piece of lace with a length of 3 m is cut into 4 equal pieces. What is the length of each piece of lace?



$3 \div 4 =$ ☐

Each piece is ☐ m.

2 Find the value of $14 \div 4$.

Method 1

$$14 \div 4 = \frac{14}{4}$$
$$= \frac{7}{2}$$
$$= 3\frac{\square}{2}$$

Method 2

$$14 \div 4 = 3\frac{2}{4}$$
$$= 3\frac{\square}{2}$$

$$\begin{array}{r} 3 \\ 4\overline{)\,14} \\ \underline{12} \\ 2 \end{array}$$

3 Divide. Express each answer as a fraction in its simplest form.

a) $3 \div 6$ **b)** $2 \div 4$ **c)** $6 \div 8$

d) $5 \div 4$ **e)** $17 \div 5$ **f)** $12 \div 9$

4 Hamid cut a coil of 8-m long wire into 5 equal pieces. How long was each shorter piece of wire? Give your answer as a fraction in its simplest form.

AB 5A Part 1, Activity 3.10

Fractions and Decimals

4 kg of rice is shared equally among 5 people. How much does each person get?

Method 1

$4 \div 5 = \frac{4}{5} = \frac{80}{100} = 0.8$

Method 2

$4 \div 5 =$ ☐

Press C 4 ÷ 5 =

Display: ☐

1 Using the ÷ key on your calculator, express the following as decimals. Round off your answers to 2 decimal places.

a) $\frac{2}{3}$ b) $\frac{4}{7}$ c) $\frac{7}{6}$

What do you notice about your answers before rounding off?

2 Fill in the blanks.

a) $0.375 = \frac{\square}{1000}$

$= \frac{\square}{8}$

b) $6.124 = 6 + \frac{\square}{1000}$

$= 6\frac{\square}{250}$

Use a calculator to check your answers.

3 Using the ÷ key on your calculator, express the following as decimals. Round off your answers to 3 decimal places.

a) $\frac{1}{9}$ b) $\frac{2}{9}$ c) $\frac{3}{9}$

d) $\frac{4}{9}$ e) $\frac{5}{9}$ f) $\frac{6}{9}$

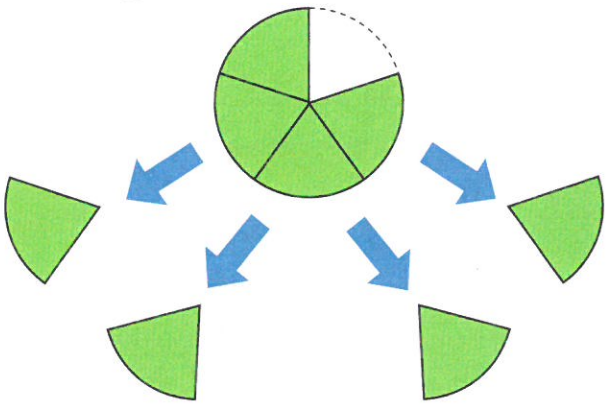
What is the pattern?

Using the pattern observed, express $\frac{8}{9}$ as a decimal correct to 3 decimal places **without** using a calculator.

AB 5A Part 1, Activity 3.11

Dividing a Proper Fraction by a Whole Number

4 children share $\frac{4}{5}$ of a pancake equally. What fraction of the pancake does each child get?



Method 1

$$\frac{4}{5} \div 4 = \frac{1}{4} \text{ of } \frac{4}{5}$$
$$= \frac{1}{\cancel{4}_{1}} \times \frac{\cancel{4}^{1}}{5}$$
$$= \frac{1}{5}$$

Method 2

$$\frac{4}{5} \div 4 = \frac{\cancel{4}^{1}}{5} \times \frac{1}{\cancel{4}_{1}}$$
$$= \frac{1}{5}$$

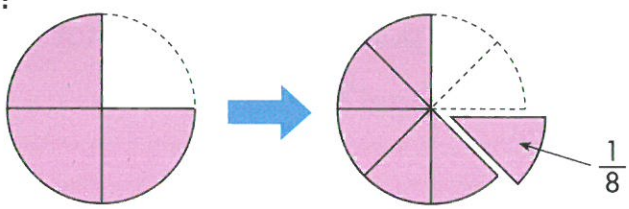
$\frac{1}{4} \times \frac{4}{5} = \frac{4}{5} \times \frac{1}{4}$

Each child gets $\frac{1}{5}$ of the pancake.

My Notes

Dividing by 4 is the same as multiplying by $\frac{1}{4}$.

6 children share $\frac{3}{4}$ of a pizza equally. What fraction of the pizza does each child get?



Method 1

$$\frac{3}{4} \div 6 = \frac{1}{6} \text{ of } \frac{3}{4}$$
$$= \frac{1}{\cancel{6}^{2}} \times \frac{\cancel{3}^{1}}{4}$$
$$= \frac{1}{8}$$

Dividing by 6 is the same as multiplying by $\frac{1}{6}$.

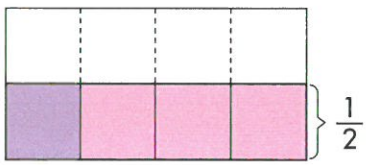
Method 2

$$\frac{3}{4} \div 6 = \frac{\cancel{3}^{1}}{4} \times \frac{1}{\cancel{6}_{2}}$$
$$= \frac{1}{8}$$

Each child gets $\frac{1}{8}$ of the pizza.

1 a) Divide $\frac{1}{2}$ by 4.

$$\frac{1}{2} \div 4 = \frac{1}{2} \times \frac{1}{4}$$
$$= \quad$$



b) Divide $\frac{2}{3}$ by 3.

$\frac{2}{3} \div 3 = \frac{2}{3} \times \frac{1}{3}$

$= \square$

2 Divide. Express each answer in its simplest form.

a) $\frac{4}{5} \div 3 = \frac{4}{5} \times \frac{1}{3}$

$= \square$

b) $\frac{3}{4} \div 9 = \frac{3}{4} \times \square$

$= \square$

c) $\frac{2}{3} \div 4$

d) $\frac{3}{5} \div 6$

e) $\frac{3}{8} \div 9$

f) $\frac{7}{9} \div 7$

g) $\frac{9}{10} \div 3$

h) $\frac{2}{3} \div 8$

AB 5A Part 1, Activity 3.12

3 $\frac{3}{4}$ kg of tea leaves are packed equally into 5 bags. What is the mass of tea leaves in each bag?

4 $\frac{3}{5}$ of a sum of money was shared equally among 3 girls. What fraction of the money did each girl get?

5 A coil of wire, $\frac{8}{9}$ m long, is cut into 4 pieces of equal length. What is the length of each piece?

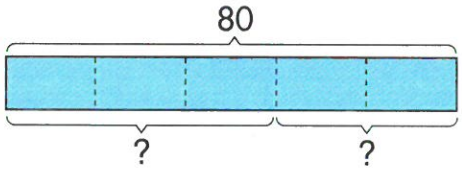
6 Dominic poured $\frac{9}{10}$ l of syrup equally into 6 glasses. How much syrup was there in each glass?

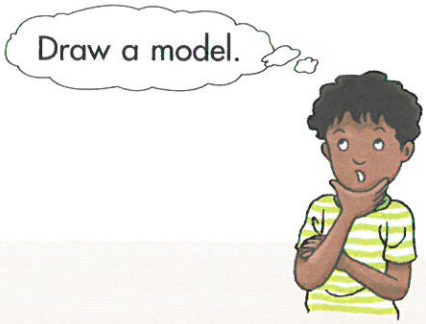
7 The perimeter of a square board is $\frac{4}{5}$ m. What is the length of each side of the board?

AB 5A Part 1, Activity 3.13

Solving Word Problems

80 children went on an excursion. $\frac{3}{5}$ of them were girls. How many girls were there? How many boys were there?





Method 1

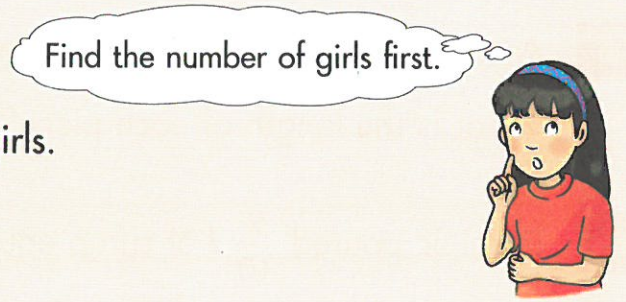
5 units = 80
1 unit = 80 ÷ 5
= 16
3 units = 3 × 16
= ☐

There were ☐ girls.

2 units = 2 × 16
= ☐

There were ☐ boys.

Method 2



$\frac{3}{5}$ of the children were girls.

$\frac{3}{5}$ × 80 = ☐

There were ☐ girls.

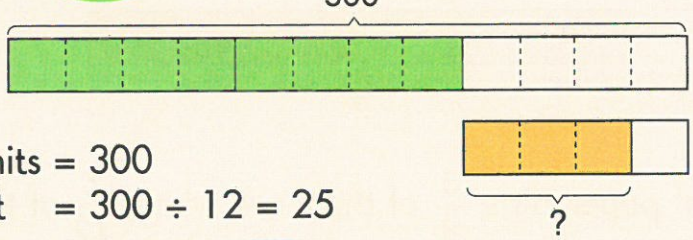
80 − ☐ = ☐

There were ☐ boys.

Mr Chin had 300 eggs. He sold $\frac{2}{3}$ of them on Sunday and $\frac{3}{4}$ of the remainder on Monday. How many eggs did he sell on Monday?

Method 1

Draw a model.



12 units = 300
1 unit = 300 ÷ 12 = 25
3 units = 3 × 25 = ☐
He sold ☐ eggs on Monday.

Method 2

First, find the number of eggs sold on Sunday. Next, find the number of eggs left on Sunday.

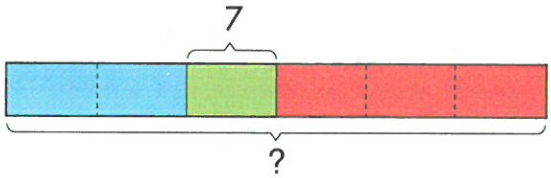
$\frac{2}{3} \times 300 = 200$
He sold 200 eggs on Sunday.
300 − 200 = 100
He had 100 eggs left on Sunday.
$\frac{3}{4} \times 100 =$ ☐
He sold ☐ eggs on Monday.

Method 3

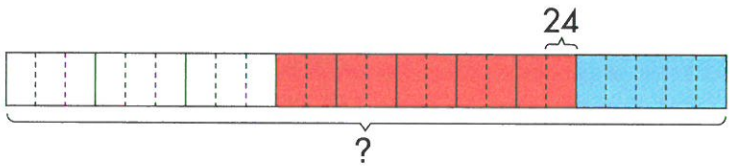
First, find the fraction of eggs left on Sunday. Next, find the fraction of eggs sold on Monday.

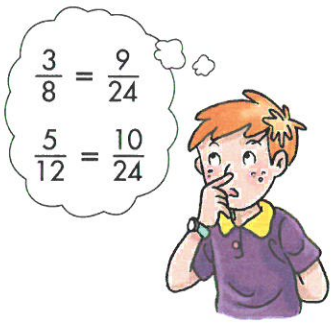
$1 - \frac{2}{3} = \frac{1}{3}$
He had $\frac{1}{3}$ of the eggs left on Sunday.
$\frac{3}{4}$ of $\frac{1}{3} = \frac{3}{4} \times \frac{1}{3} = \frac{1}{4}$
He sold $\frac{1}{4}$ of the eggs on Monday.
$\frac{1}{4} \times 300 =$ ☐
He sold ☐ eggs on Monday.

1 Bala has some marbles. $\frac{1}{3}$ of them are blue. $\frac{1}{2}$ of them are red and the rest are green. If he has 7 green marbles, how many marbles does he have altogether?



2 In a box of paper clips, $\frac{3}{8}$ of them are white, $\frac{5}{12}$ of them are red and the rest are blue. There are 24 more red paper clips than white paper clips. How many paper clips are there in the box?





3 There are 1008 pupils in a school. $\frac{3}{4}$ of the pupils are boys. There are 4 times as many girls as teachers. How many teachers are there?

4 Hamid had a sum of money. After spending $\frac{3}{8}$ of his money, he had \$60 left.

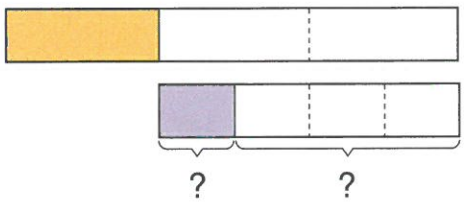
a) How much money did he spend?
b) How much money had he at first?

AB 5A Part 1, Activity 3.14

5 Kassim spent $\frac{1}{3}$ of his money on a wallet and $\frac{1}{4}$ of the remainder on a belt.

a) What fraction of his money did he spend on the belt?

b) What fraction of his money had he left after buying the wallet and the belt?

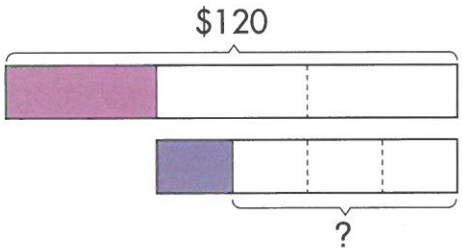


6 $\frac{1}{2}$ of a rectangular wall is painted red. $\frac{2}{3}$ of the remaining part of the wall is painted blue and the rest of the wall is painted yellow.

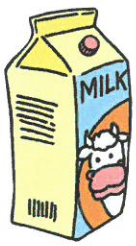
a) What fraction of the wall is painted blue?

b) What fraction of the wall is painted yellow?

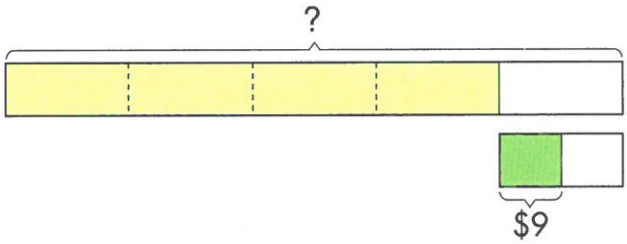
7 Linda had \$120. She spent $\frac{1}{3}$ of her money on a necklace and $\frac{1}{4}$ of the remainder on a brooch. How much money had she left?



8 Mrs Loh had 840 ml of milk. She used $\frac{1}{2}$ of the milk to prepare a banana milkshake and $\frac{2}{3}$ of the remainder to make ice-cream. How many millilitres of milk had she left?



9 Betty spent $\frac{4}{5}$ of her money on food and $\frac{1}{2}$ of the remainder on drinks. She spent \$9 on drinks. How much money had Betty at first?



10 Susan spent $\frac{3}{8}$ of her money on a school bag and $\frac{2}{5}$ of the remainder on a pen. The pen cost \$30. How much did the school bag cost?

11 Samy spent $\frac{1}{2}$ of his money on a pair of track shoes and $\frac{3}{4}$ of the remainder on a track suit. After paying for both items, he had \$20 left. What was the difference in price between the two items?

AB 5A Part 1, Activity 3.15

You may use a calculator to solve these problems.

12 A rectangular field is $15\frac{2}{3}$ m long and $7\frac{4}{5}$ m wide. A fence is to be built along its edge.

a) How much fencing is required?
b) Each metre of fencing costs \$24. Find the total cost of the fencing.

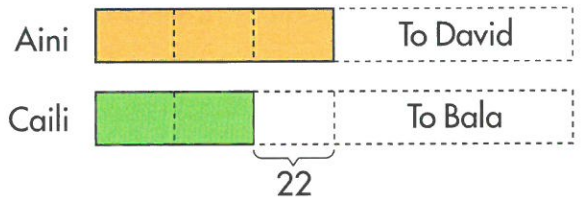
13 Ali needs $19\frac{1}{5}$ l of blue paint to paint a garden shed. He needs 3 times as much red paint to paint the garden wall. How much paint does he need to buy altogether?

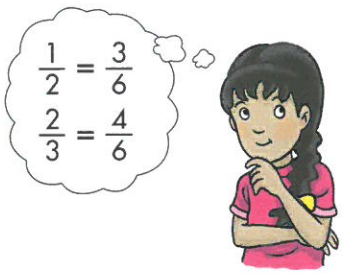
14 A metre of cotton costs \$3 and a metre of lace costs twice as much. A tailor bought $4\frac{1}{2}$ m of cotton and $2\frac{3}{5}$ m of lace. How much did he spend? Express your answer correct to the nearest dollar.

15 Mrs Tan bought a packet of sugar. She used $\frac{4}{5}$ of the sugar to make syrup. If she used 5 kg of sugar to make the syrup,

a) how many kilograms of sugar did she buy?
b) how many kilograms of sugar had she left?

16 Aini and Caili have the same number of stamps. Aini gives $\frac{1}{2}$ of her stamps to David and Caili gives $\frac{2}{3}$ of her stamps to Bala. Caili has 22 fewer stamps than Aini now. How many stamps did each of them have at first?





17 Siti and Ali had the same amount of money. Siti spent $\frac{2}{3}$ of her money on a blouse and Ali spent $\frac{1}{3}$ of his money on a ball. Siti spent \$16 more than Ali. How much money did Siti and Ali each have at first?

18 David and Peter share a sum of money. David gets $\frac{7}{10}$ of the sum. After David has given Peter \$26, they will each have the same amount of money. Find the original sum of money.

19 I am thinking of two numbers. The sum of the two numbers is 80. $\frac{1}{5}$ of the first number is 2 more than $\frac{1}{5}$ of the second number. What are the numbers?

AB 5A Part 1, Activity 3.16

Fun with Maths

Target Shooting

What you need

10 counters in two different colours, two calculators and a game board.

How to play

Play with a friend.
Take turns to:

1. Select a start number.
2. Guess which target on the game board will be hit.
3. Select your target and place your counter on it.
4. Check using your calculator.
5. Remove your counter if you miss hitting the target.

Example:
When you start with 5 and use the rule '$+\frac{3}{5}$', will you hit the target $11\frac{2}{5}$, $11\frac{3}{5}$ or $11\frac{4}{5}$ if you add $\frac{3}{5}$ repeatedly to 5?

Select one of the possible targets **before** you use the calculator to compute!

$$5 + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = 11\frac{3}{5}$$

You hit the target if you had selected $11\frac{3}{5}$.

Start	Rule	Targets		
5	$+\frac{3}{5}$	$11\frac{2}{5}$	$11\frac{3}{5}$	$11\frac{4}{5}$
2	$+\frac{2}{3}$	6	$6\frac{1}{3}$	7
10	$-\frac{3}{4}$	0	$\frac{3}{4}$	1
5	$+\frac{5}{6}$	$9\frac{1}{6}$	$9\frac{5}{6}$	$10\frac{1}{6}$
1	$+\frac{2}{5}$	4	$5\frac{2}{5}$	$6\frac{4}{5}$
10	$-\frac{4}{7}$	7	$6\frac{1}{7}$	$5\frac{3}{7}$

Who has hit more targets at the end of the game?

Review A

1 Write in words.

a) 700 029
b) 300 426
c) 525 108
d) 4 060 100

2 Write in figures.

a) Two hundred and thirty-four thousand
b) Eight hundred and eleven thousand, one hundred and fifty-two
c) Five hundred thousand and fifty-six
d) Five million, three hundred and four thousand and eighteen

3 What is the missing number in each of the following number sentences?

a) 6 243 000 = 6 000 000 + ☐ + 40 000 + 3000
b) 5 000 183 = ☐ + 100 + 80 + 3

4 What is the value of the digit 7 in each of these numbers?

a) 574 200
b) 702 608
c) 7 115 029
d) 6 087 152

5 a) Arrange the numbers in decreasing order.
429 848, 429 910, 395 267, 394 870

b) Arrange the numbers in increasing order.
564 830, 556 840, 499 206, 499 602

6 What are the missing numbers?

a) 318 234, 328 234, 338 234, ☐, ☐, 368 234
b) 725 106, 720 106, 715 106, ☐, 705 106, ☐

7 Round off:

a) 56 008 to the nearest ten
b) 126 980 to the nearest hundred
c) 758 129 to the nearest thousand

8 Round off each number to the nearest thousand. Then estimate the values.

a) 35 560 + 48 086
b) 149 700 − 83 199

9 Multiply.

a) 57 × 10
b) 131 × 100
c) 2016 × 1000
d) 64 × 30
e) 301 × 700
f) 4314 × 2000

10 Divide.

a) 90 ÷ 10
b) 800 ÷ 100
c) 7000 ÷ 1000
d) 540 ÷ 60
e) 4500 ÷ 500
f) 16 000 ÷ 4000

11 Find the value of each of the following. Use a calculator to check your answer.

a) 34 + 5 − 13
b) 29 − 21 + 7
c) 72 ÷ 8 × 3
d) 4 × 9 ÷ 6
e) 14 + 3 × 9
f) 25 − 9 × 2
g) (60 − 45) × 2
h) (12 + 18) ÷ (17 − 12)

12 Add or subtract. Express each answer in its simplest form.

a) $\frac{3}{8} + \frac{1}{10}$
b) $\frac{1}{5} + \frac{2}{3}$
c) $\frac{7}{9} - \frac{2}{3}$
d) $\frac{4}{5} - \frac{2}{3}$
e) $\frac{8}{9} + \frac{2}{3}$
f)  $6\frac{3}{4} + 1\frac{1}{5}$
g) $\frac{7}{8} - \frac{2}{5}$
h) $4 - \frac{3}{7}$
i)  $5\frac{1}{2} - 3\frac{5}{9}$

13 Find the value of each of the following:

a) $\frac{1}{3} \times \frac{1}{7}$ b) $\frac{2}{5} \times \frac{5}{9}$ c) $\frac{3}{4} \times \frac{8}{9}$

14 Divide.

a) $12 \div 5$ b) $\frac{4}{5} \div 2$ c) $\frac{2}{3} \div 6$

15 Express each of the following as a decimal.

a) $3 \div 4$ b) $4 \div 5$ c) $7 \div 25$ d) $19 \div 50$

16 Marcus had \$500. He donated \$75 to The School Pocket Money Fund and 3 times as much to the Community Chest. How much money had he left?

17 Pei Fen bought 4 reams of paper and 2 box files. Each box file cost twice as much as each ream of paper. She paid \$32 for all the items. What was the total cost of the 4 reams of paper?

18 Rosa had 3 times as much money as Siti. After spending \$5, she had twice as much money as Siti. How much money had Rosa at first?

19 a) The length of each side of a square plot of land is $\frac{1}{4}$ km. What is its perimeter in kilometres?

b) A 6-m piece of wire is bent to form a square. What is the length of each side of the square in metres?

20 **a)** Eugene watched a television programme which lasted $\frac{3}{4}$ h. How many minutes did the programme last?

b) A 3-legged race required pupils to cover $\frac{2}{3}$ of 150 m. What distance did the pupils cover?

21 $\frac{4}{5}$ *l* of honey is poured equally into 8 glasses. How much honey is there in each glass? Give your answer in millilitres.

22 Sally is in school $\frac{1}{3}$ of the day. She spends $\frac{3}{4}$ of the time in school having lessons. How many hours does she spend having lessons in school?

23 Remmy knocked down 120 pins in a bowling game. Jega knocked down $\frac{2}{3}$ as many pins as Remmy. Ismail knocked down $\frac{3}{4}$ as many pins as Jega. How many pins did Ismail knock down?

24 Mary baked 30 cookies and offered $\frac{2}{3}$ of them to Caili. Caili took some cookies and returned 12 cookies to Mary. How many cookies did Caili take?

You may use a calculator to solve these problems.

25 Estimate. Then use a calculator to find the value of each of the following:

a) 8659 × 5
b) 8097 × 8
c) 718 × 21
d) 6070 × 47

26 Estimate the quotient. Then use a calculator to find the quotient and remainder, if any.

a) $98 \div 14$ **b)** $378 \div 17$ **c)** $4646 \div 32$

27 Find the value of each of the following:

a) $\frac{5}{3} \times \frac{1}{3}$ **b)** $\frac{7}{2} \times \frac{4}{3}$

c) $\frac{9}{7} \times 14$ **d)** $3\frac{2}{3} \times 9$

28 In a school with 36 classes, each class needs \$250 to start a class library.

a) How much money is needed for all the 36 class libraries?

b) The school receives a donation of \$9072 for all the classes to share equally to start their class libraries. After starting the class library, how much money would each class have left?

29 Mrs Seeto baked 504 cookies. She sold $\frac{4}{7}$ of them on Sunday and $\frac{2}{3}$ of the remainder on Monday. How many cookies did she sell on the two days?

30 Rohani spent $\frac{3}{4}$ of her money on textbooks and $\frac{1}{2}$ of the remainder on exercise books. After paying for all the items, she had \$12 left. How much money did she spend altogether?

31 Samuel spends $\frac{7}{10}$ of his monthly salary on his family, $\frac{2}{3}$ of the remainder on himself and saves the rest. If he saves \$220, how much is his monthly salary?

32 Siti gave $\frac{3}{4}$ of her stamps to Mariam. Mariam returned Siti 6 stamps. Now Siti has 40 stamps. How many stamps had Siti at first?

33 A photocopying shop charges the following rates.

Number of pages	Charge
1st 100 pages	5¢ each
Additional pages in excess of 100	3¢ each

a) How much did Jaya have to pay for photocopying 100 pages?

b) Catherine paid $5.60 for photocopying some pages of a book. How many pages did she photocopy?

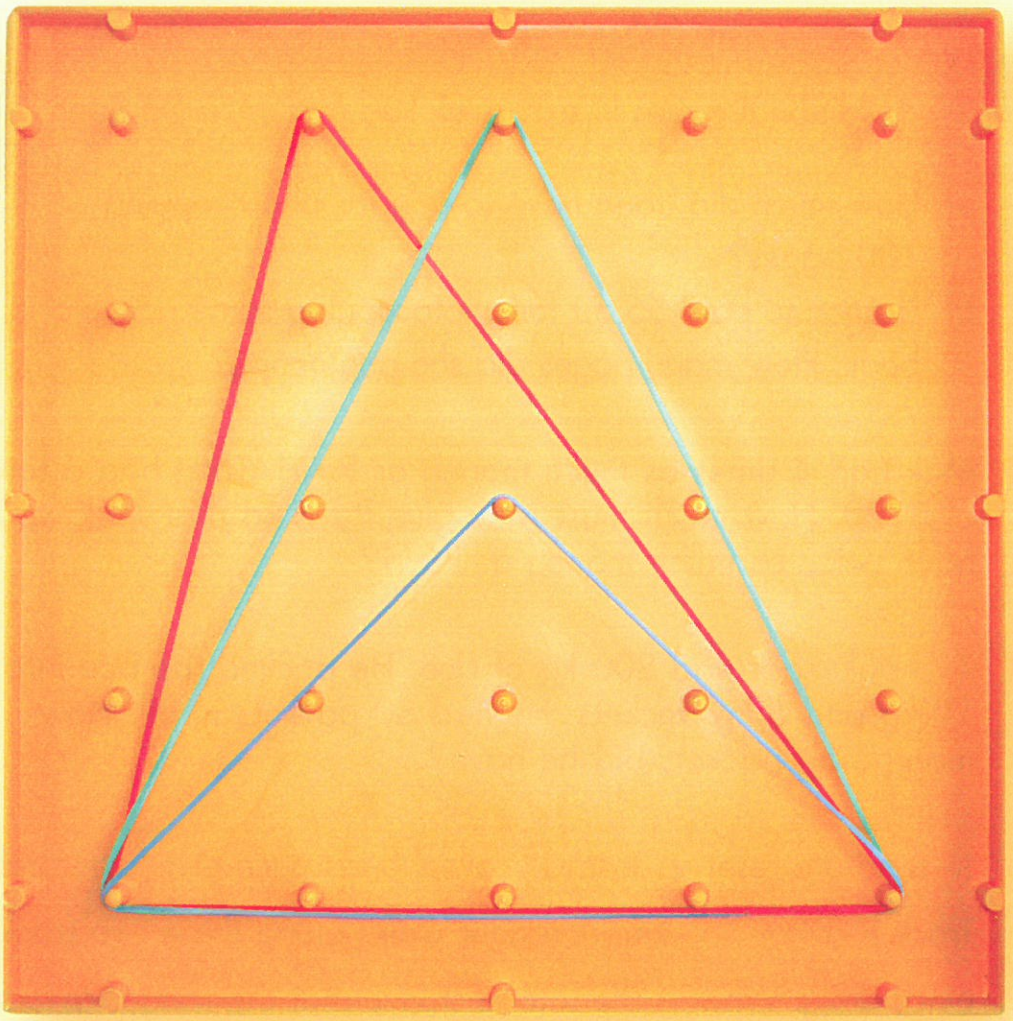
34 Mak had 4 times as much money as Pavri. They had a total of $120. How much must Mak give Pavri so that Mak would have twice as much money as Pavri?

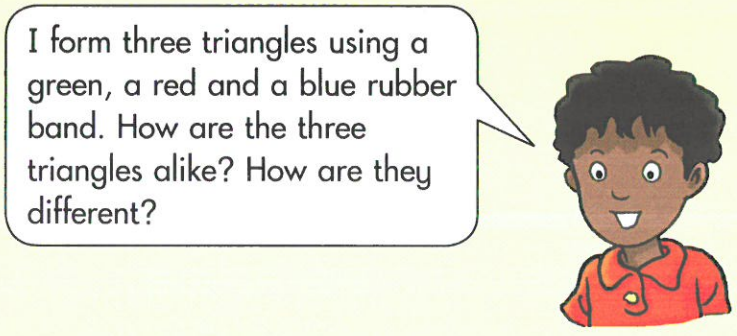
35 A shopkeeper had 200 kg of rice. He packed the rice into 10-kg and 5-kg packets. He had 30 packets in all. How many 5-kg packets did he have?

36 In a nature reserve, Track A covers a distance of $1\frac{5}{8}$ km and Track B covers $3\frac{4}{5}$ km. A ranger walks along these two tracks twice daily. What is the total distance that the ranger covers in 6 days?

4 Area of Triangle

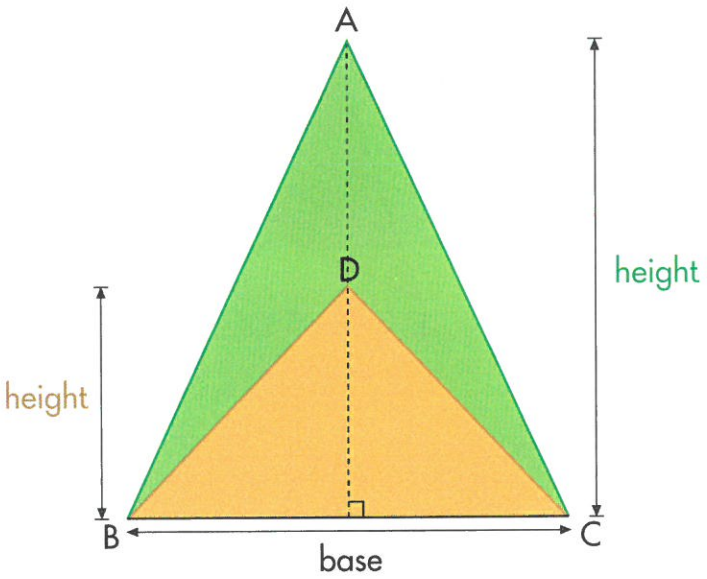
Bala makes these three triangles on a geoboard.





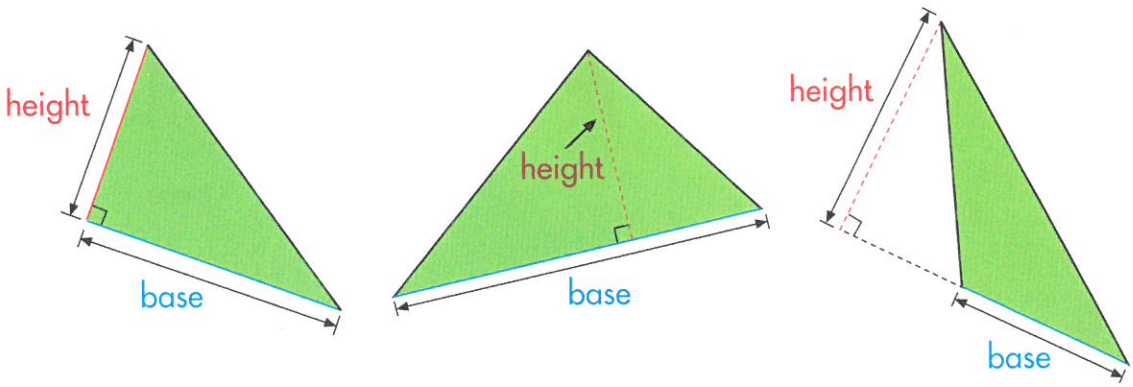
AB 5A Part 2, Recall 4

Base and Height of a Triangle



The two triangles, ABC and DBC, have the same **base** but different **heights**.

Study the triangles below.
What can you say about the base and height of each triangle?

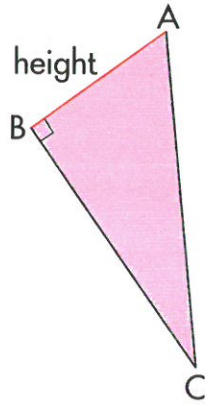


My Notes

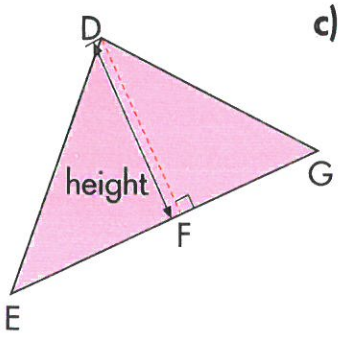
The height of a triangle is **perpendicular** to its base.

1 For each triangle, name the base which is related to the given height.

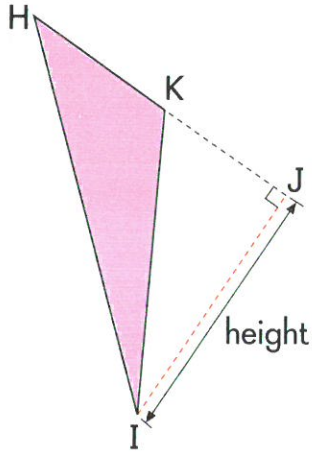
a)



b)

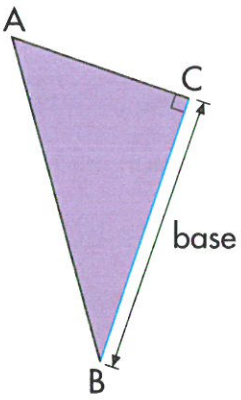


c)

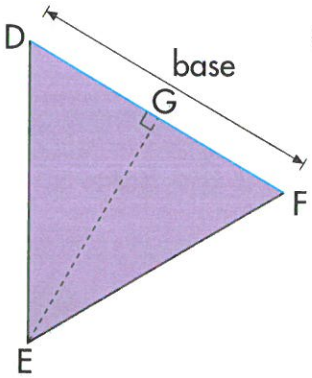


2 For each triangle, name the height which is related to the given base.

a)



b)



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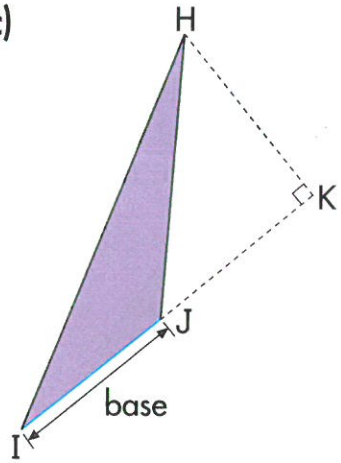
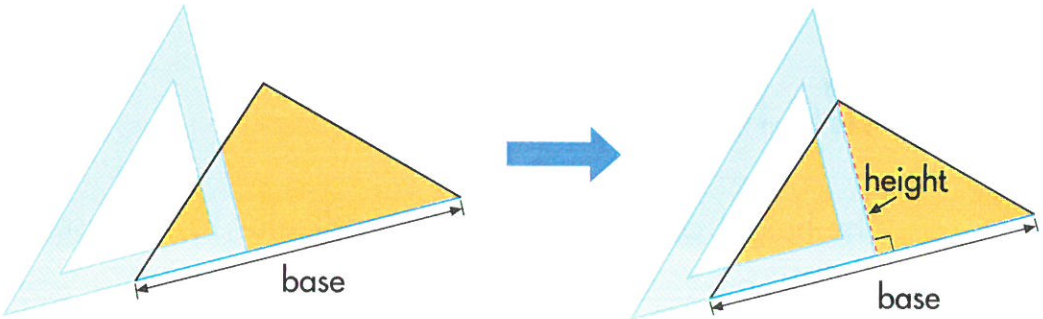
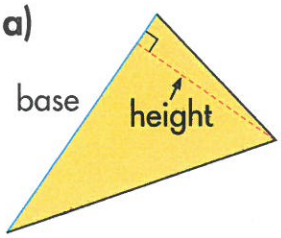


3 Bala uses a set square to draw the height of a triangle given its base.

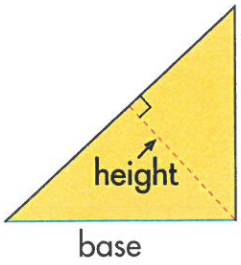


Help Bala to identify which one of the following triangles has its height correctly drawn.

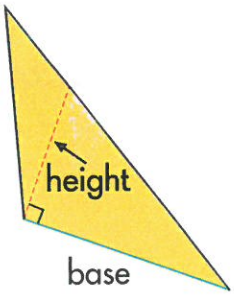
a)



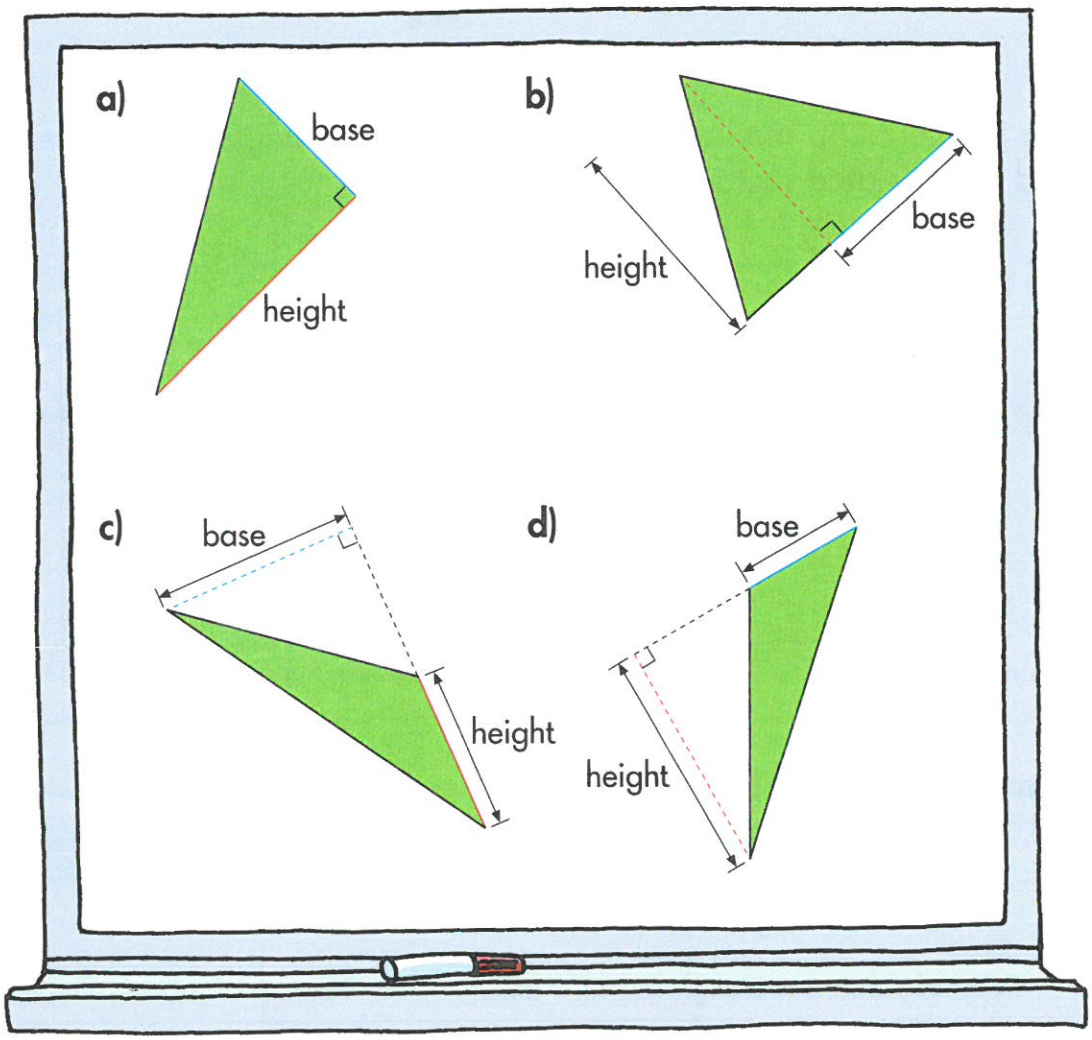
b)



c)



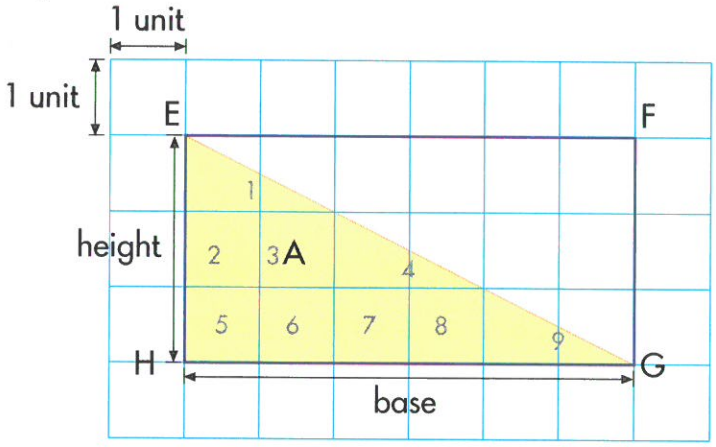
4 Caili drew four triangles. For each triangle, did she indicate its base and corresponding height correctly? Explain.



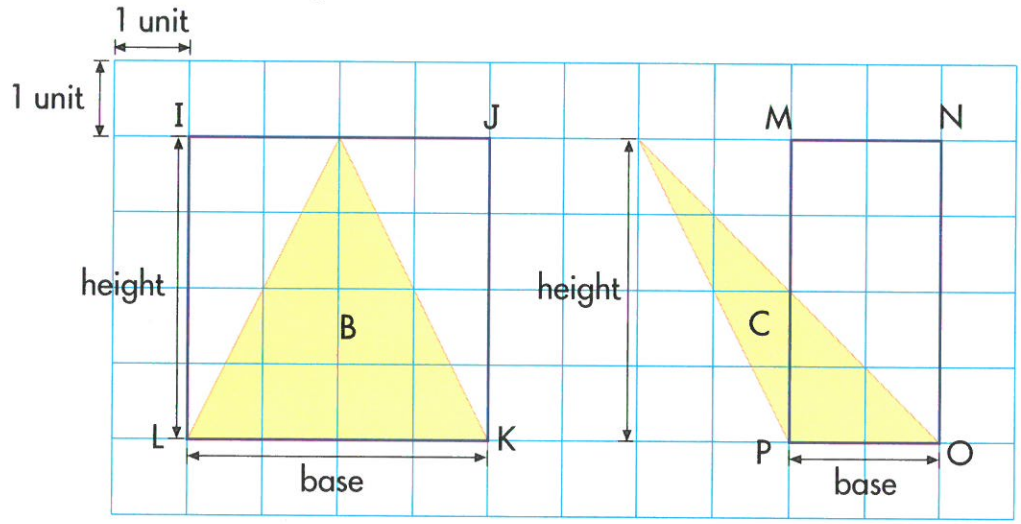
AB 5A Part 2, Activity 4.1

Finding the Area of a Triangle

Find the area of Triangle A and its related rectangle, EFGH, by counting the number of square units.



Use the counting method to find the areas of Triangle B, Triangle C and their related rectangles, IJKL and MNOP.

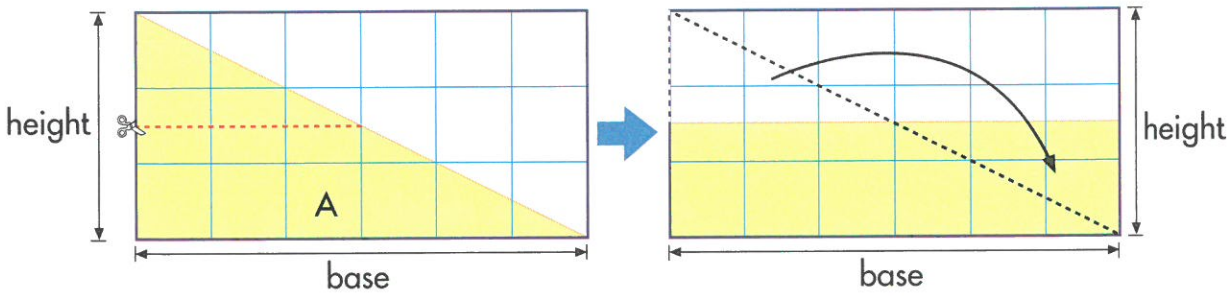


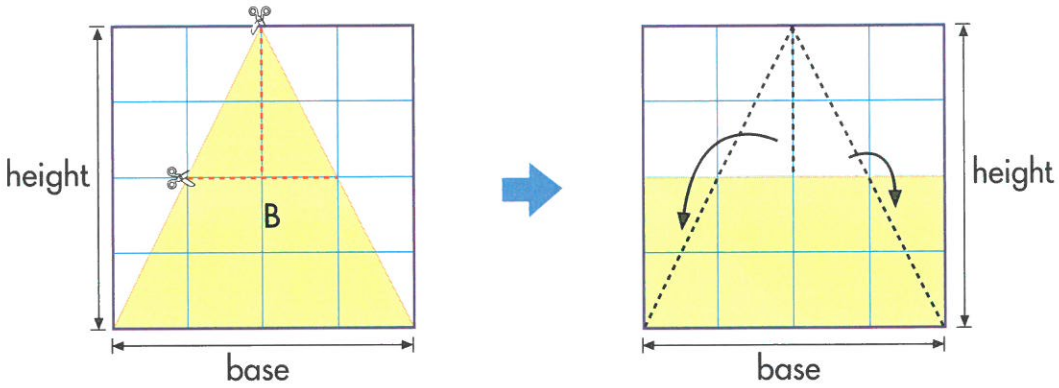
Complete the table below.

	A	B	C
Area of triangle (square units)	9		
Area of related rectangle (square units)	18		

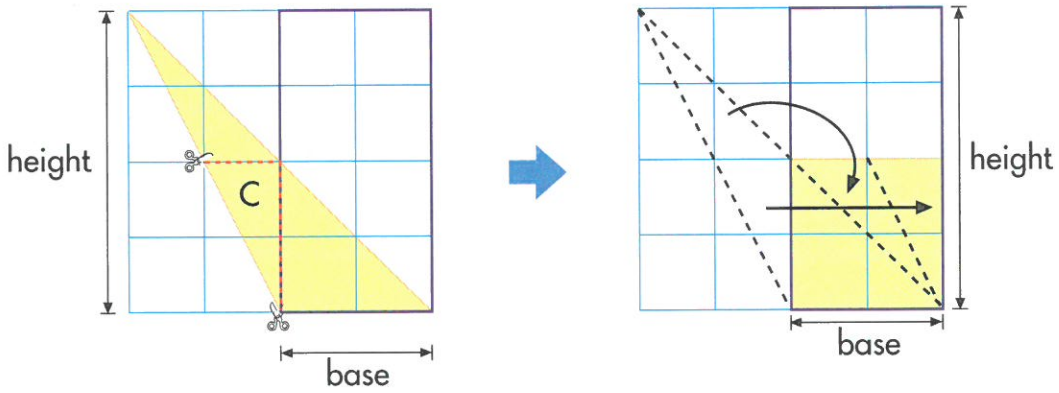
What do you notice about the area of a triangle and the area of its related rectangle?

Find the area of the triangles using the 'cut-and-paste' method.





Do the same for Triangle C. Explain how you do it.



What do you notice about the area of a triangle and the area of its related rectangle?

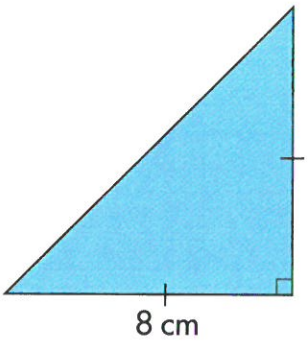
My Notes

Area of triangle $= \frac{1}{2} \times$ Area of related rectangle

$= \frac{1}{2} \times$ Base $\times$ Height

1 Find the area of each shaded triangle.

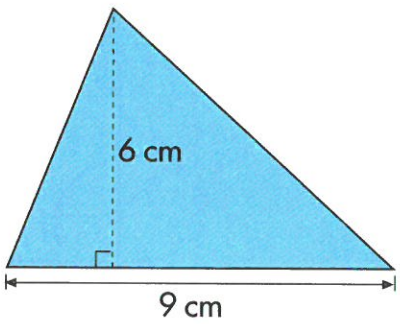
a)



Area of triangle $= \frac{1}{2} \times 8 \times$ ☐

$=$ ☐ cm^2

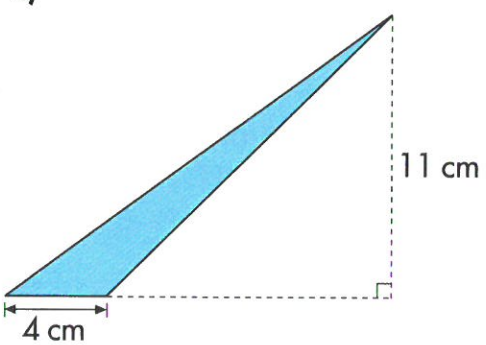
b)



Area of triangle $= \frac{1}{2} \times$ ☐ $\times$ ☐

$=$ ☐ cm^2

c)

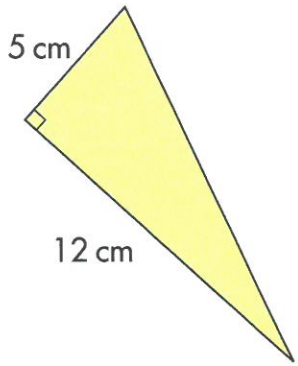


Area of triangle $= \frac{1}{2} \times$ ☐ $\times$ ☐

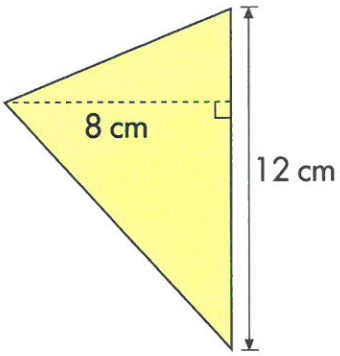
$=$ ☐ cm^2

2 Find the area of each shaded triangle.

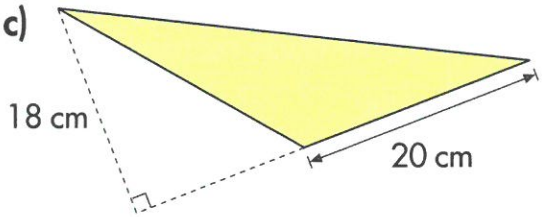
a)



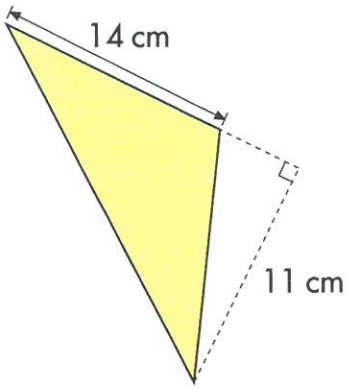
b)



c)



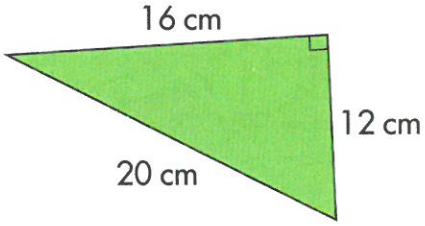
d)



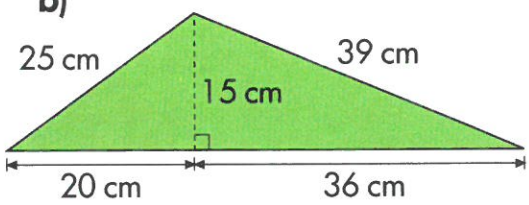
AB 5A Part 2, Activity 4.2

3 Find the area of each shaded triangle.

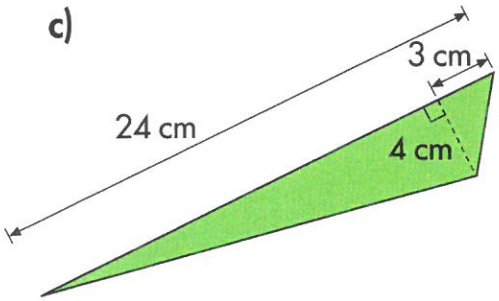
a)



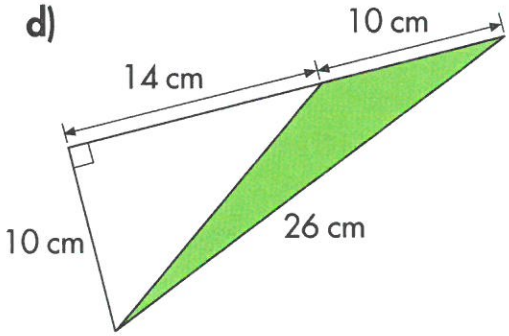
b)



c)



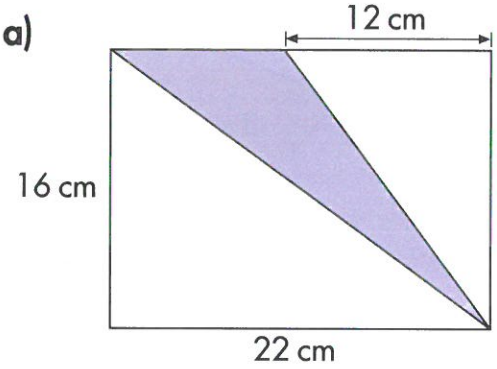
d)



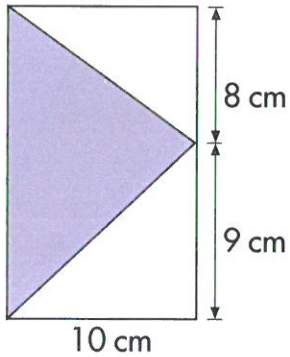
AB 5A Part 2, Activity 4.3

4 Find the area of the shaded part in each rectangle.

a)

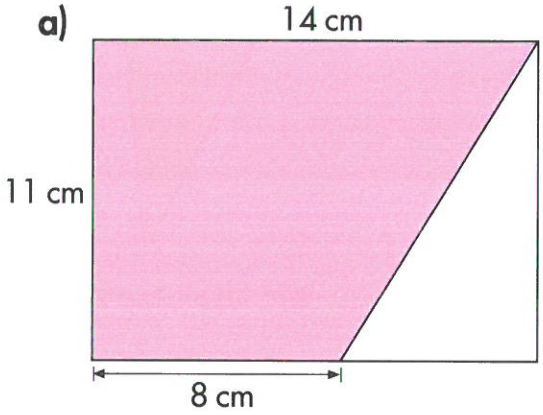


b)

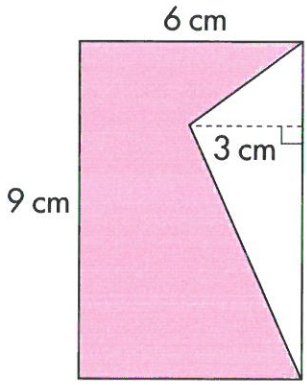


5 Find the area of the shaded part(s) in each rectangle.

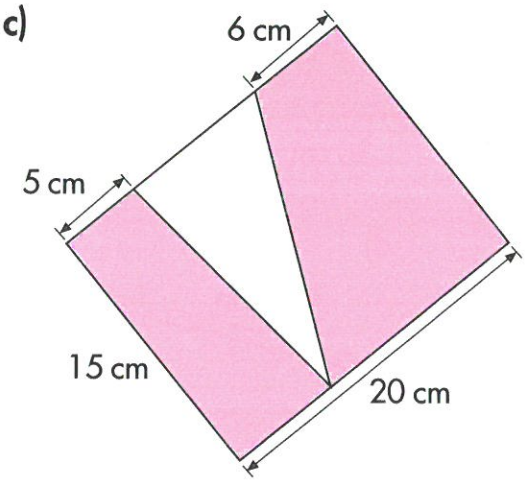
a)



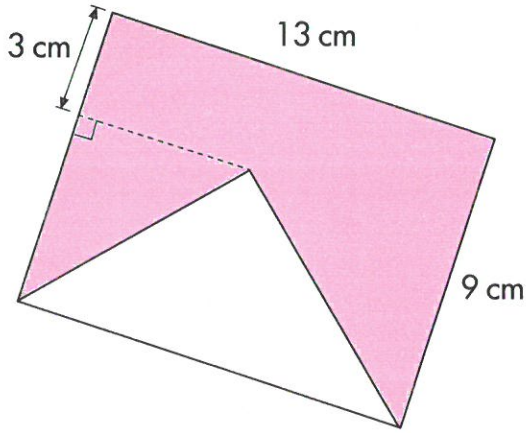
b)



c)

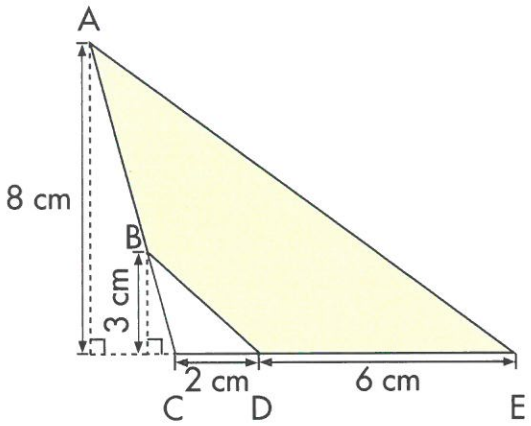


d)

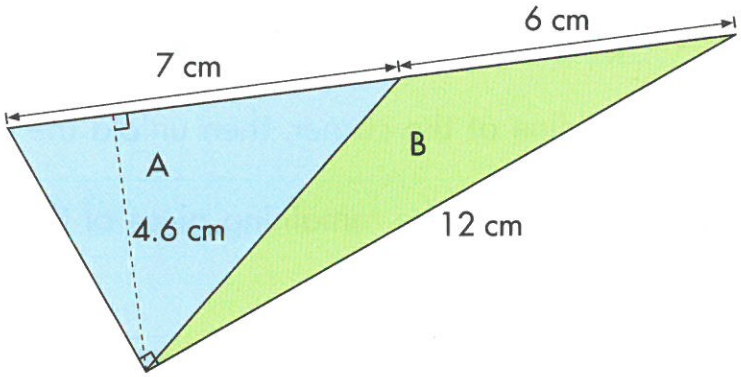


AB 5A Part 2, Activity 4.4

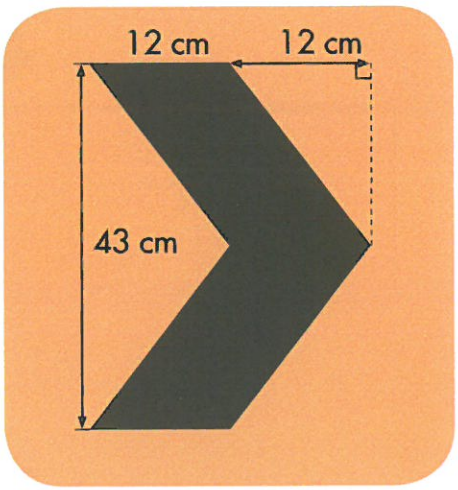
6 Find the area of the shaded part in the figure below.



7 Two triangular pieces of paper, A and B, are joined together to form a big triangle as shown. Find the area of the big triangle.



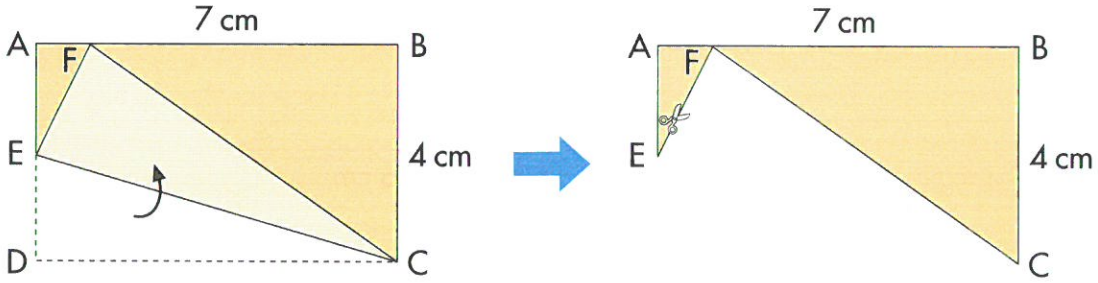
8 The figure below shows a directional sign for road works. Find the area of the arrow head.



9 ABCD is a rectangular piece of paper. E is at the middle of AD. The piece of paper is folded along the line EC.

a) Find the area of Triangle EFC.

b) If the paper is cut along the lines EF and FC, find the perimeter of the remaining part of the paper.

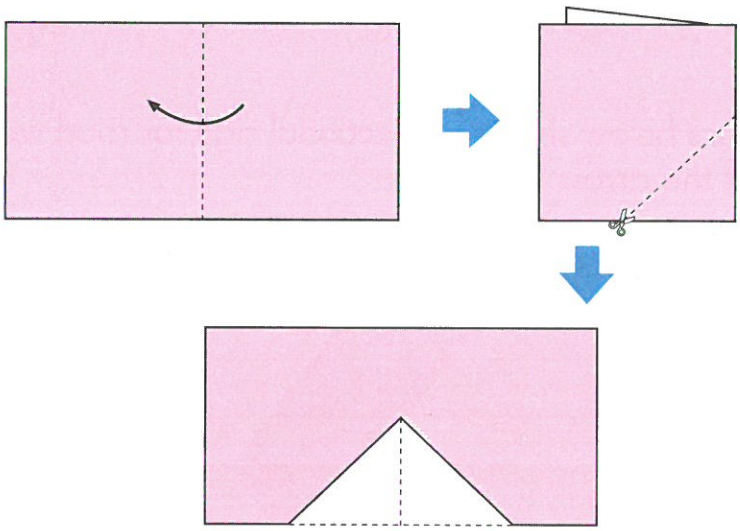


10 Work in pairs for the following activity.

Take a rectangular piece of paper and fold it into two halves as shown below.

Cut along a fold line at the corner, then unfold the piece of paper.

Explain how the area of the remaining piece of the paper (shown coloured) can be found.



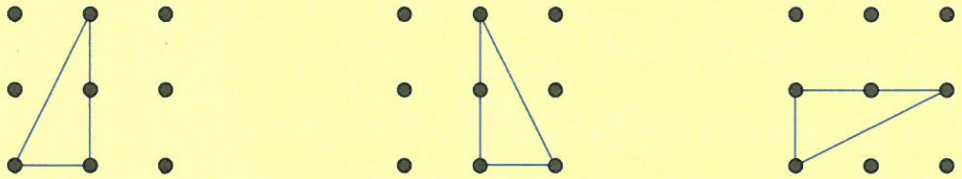
AB 5A Part 2, Activity 4.5

Fun with Maths

Fancy Triangles on Dot Paper

Triangles can be drawn on a 9-dot square grid. Here are some examples.

The triangles below are the same.



The triangles below are different.

1. What is the area of each of the above triangles?

2. On a 9-dot square grid, draw a different triangle with an area of 1 square unit.

3. On a 9-dot square grid, draw triangles with an area of 2 square units. How many different triangles with this area can you draw?

4. Can you draw a triangle with an area of $1\frac{1}{2}$ square units on the 9-dot square grid? Explain your answer.

5. What is the smallest triangle that you can draw on the 9-dot square grid?

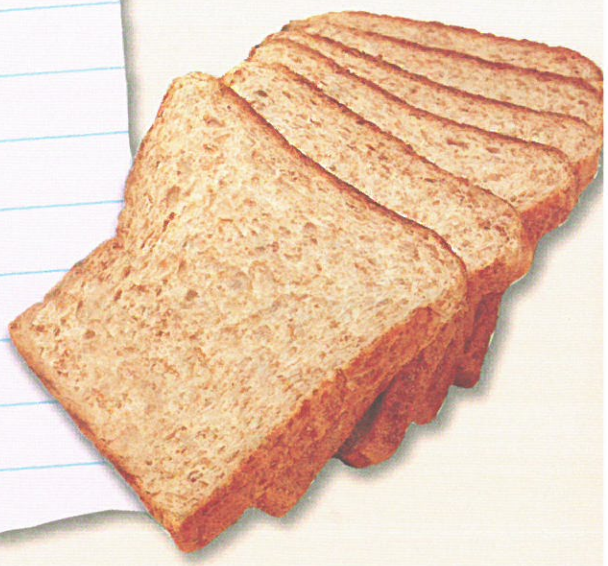
AB 5A Part 2, Let's Find Out 4

5 Ratio

Recipe for

Wholemeal Bread

- 3 cups plain flour
- 2 cups wheat flour
- 1 packet active dry yeast
- $1\frac{3}{4}$ cups water
- $\frac{1}{3}$ cup brown sugar
- 2 tablespoons shortening



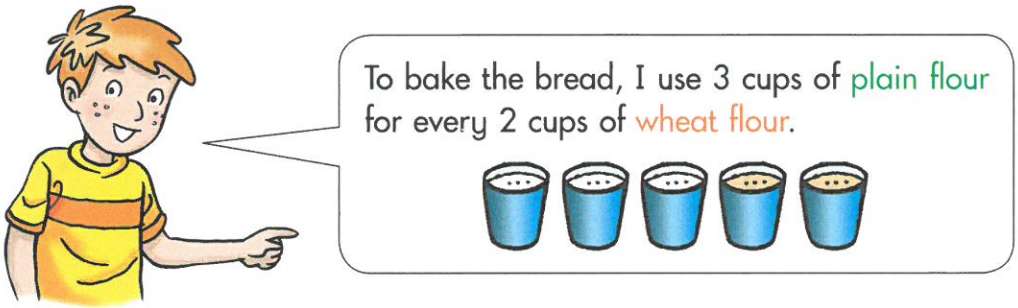
How many packets of dry yeast does Bala need?

How many packets of dry yeast does Caili need?

AB 5A Part 2, Recall 5

Finding Ratio

David uses the same recipe to bake some bread.

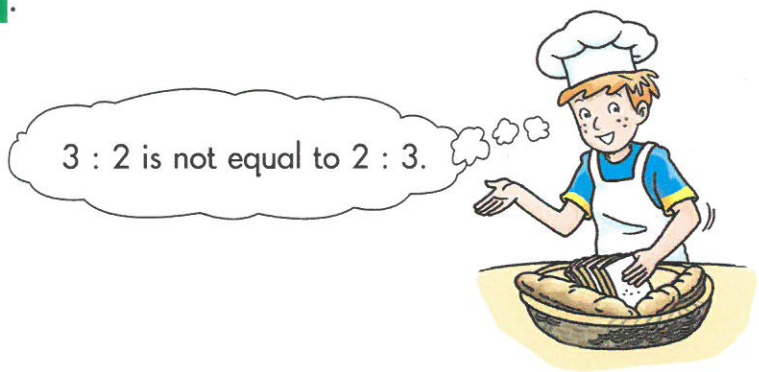


The **ratio** of the number of cups of plain flour to the number of cups of wheat flour is 3 : 2.

My Notes

We read the ratio **3 : 2** as **3 to 2**. Ratio does not have units.

The ratio of the number of cups of wheat flour to the number of cups of plain flour is ■ : ■.

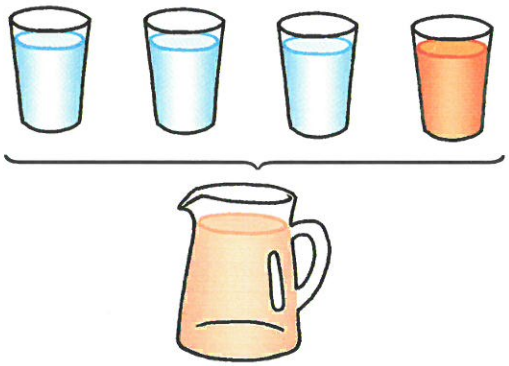


How many cups of flour does David use in total to bake the bread? Explain your answer.

The ratio of the number of cups of wheat flour to the total number of cups of flour is ■ : ■.

1 Aini, Bala and Caili each prepare a jug of orange juice by mixing water and orange syrup as shown below.

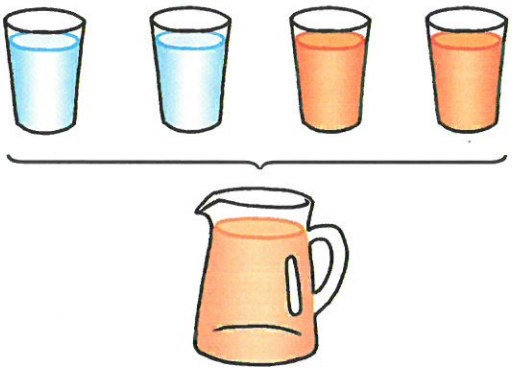
a)



Aini

The ratio of the number of glasses of water to the number of glasses of orange syrup is 3 : 1.

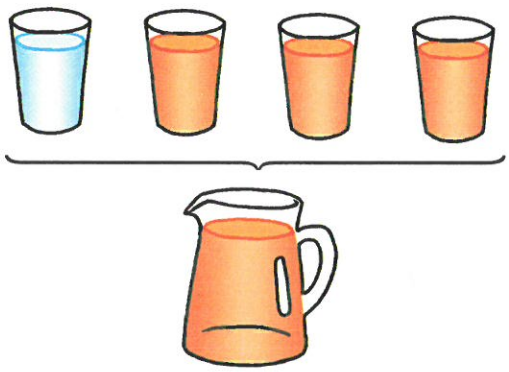
b)



Bala

The ratio of the number of glasses of water to the number of glasses of orange syrup is ☐ : ☐.

c)

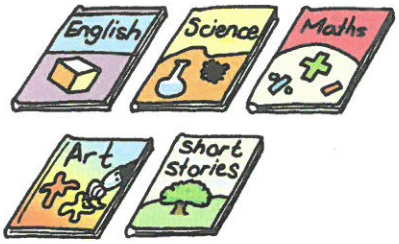


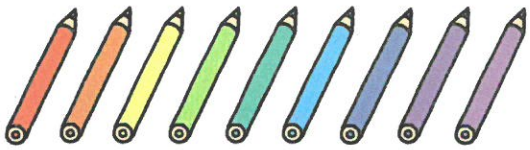
Caili

The ratio of the number of glasses of water to the number of glasses of orange syrup is ☐ : ☐.

Who makes the sweetest orange drink? Explain your answer.

2





a) The ratio of the number of books to the number of colour pencils is ___ : ___.

b) The ratio of the number of colour pencils to the number of books is ___ : ___.

3 David counts the bean bags in a basket and records the number of bean bags in the table below.

Colour of bean bags	Number of bean bags
Blue	8
Green	3
Red	5

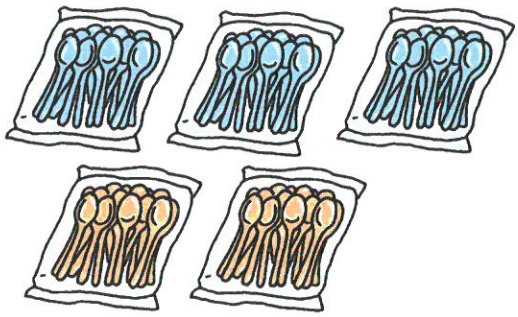
a) The ratio of the number of blue bean bags to the number of red bean bags is ___ : ___.

b) The total number of bean bags is ___.
The ratio of the number of green bean bags to the total number of bean bags is ___ : ___.

c) The ratio of the total number of bean bags to the number of blue bean bags is ___ : ___.

d) The ratio of the number of blue bean bags to the number of bean bags that are **not** blue is ___ : ___.

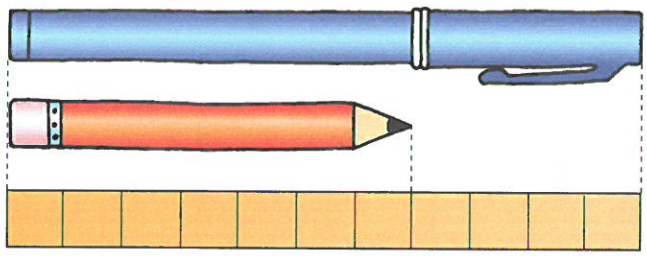
4 Each packet has the same number of spoons.

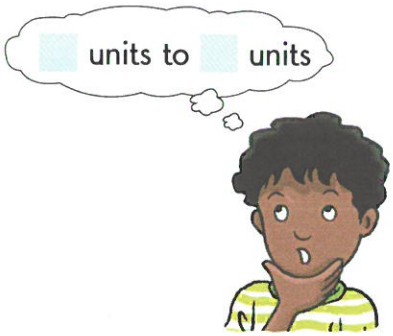


a) The ratio of the number of packets of blue spoons to the number of packets of orange spoons is ☐ : ☐.

b) The ratio of the number of packets of orange spoons to the total number of packets of spoons is ☐ : ☐.

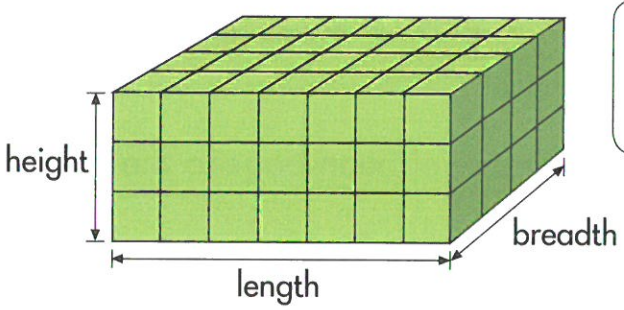
5

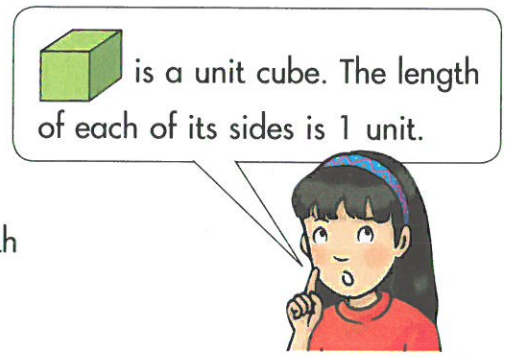




The ratio of the length of the pen to the length of the pencil is ☐ : ☐.

6 The following cuboid is made up of unit cubes.

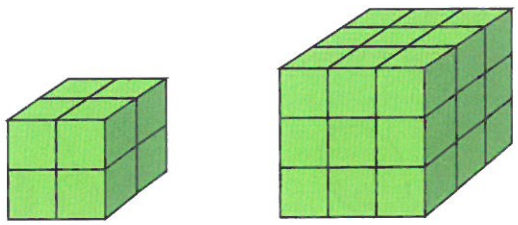




a) The ratio of the length of the cuboid to its breadth is ☐ : ☐.

b) The ratio of the breadth of the cuboid to its height is ☐ : ☐.

7 Keng Cheong uses unit cubes to build Cube A and Cube B.

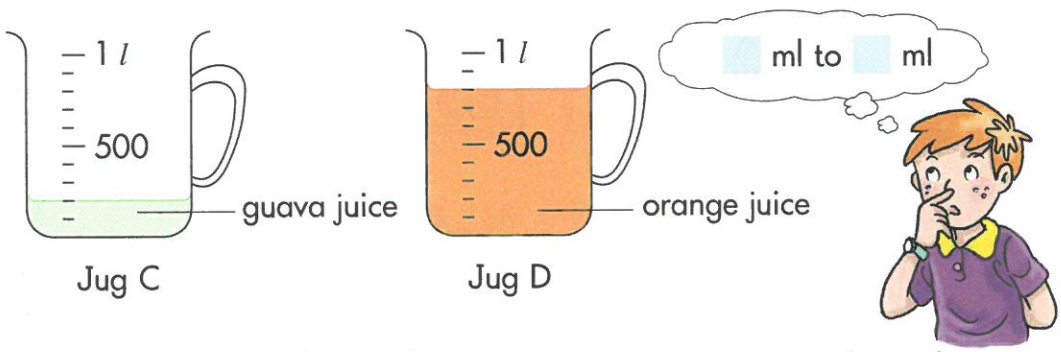


A B

a) The ratio of the length of Cube A to the length of Cube B is ☐ : ☐.

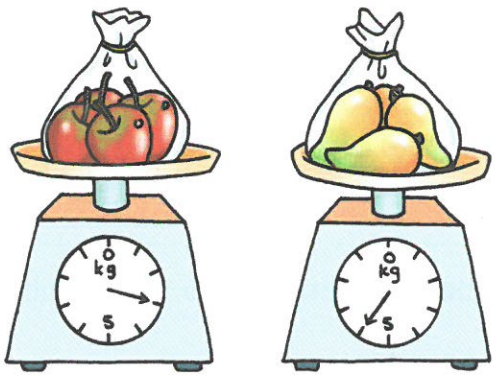
b) The ratio of the number of cubes used in Cube A to the number of cubes used in Cube B is ☐ : ☐.

8



The ratio of the volume of orange juice in Jug D to the volume of guava juice in Jug C is ☐ : ☐.

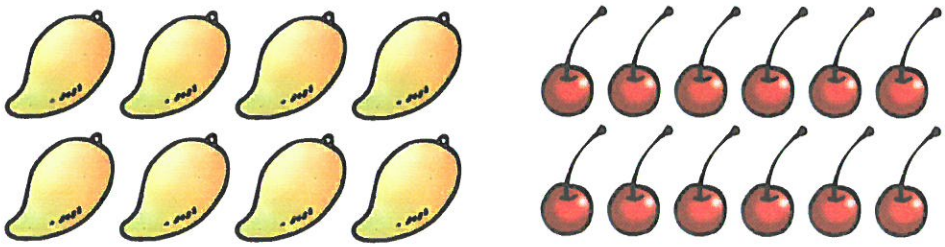
9



The ratio of the mass of the bag of apples to the mass of the bag of mangoes is ☐ : ☐.

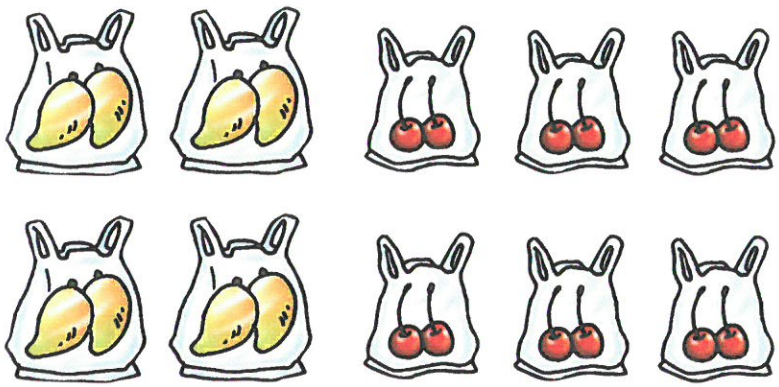
Equivalent Ratios

David has 8 mangoes and 12 cherries.



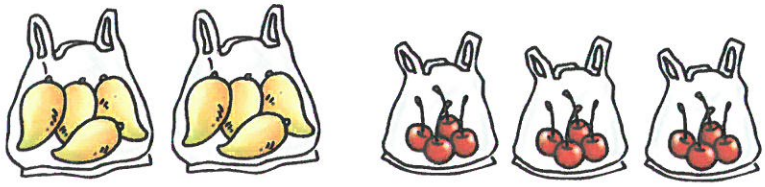
The ratio of the number of mangoes to the number of cherries is 8 : 12.

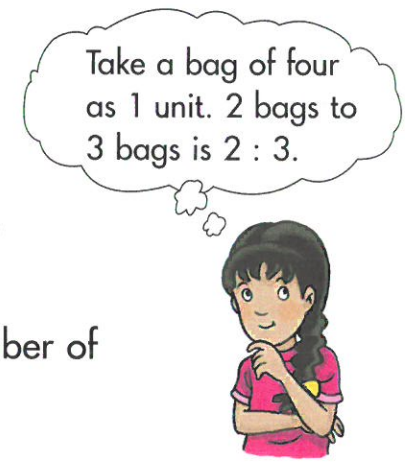
He packs the fruits in bags of two.



The ratio of the number of mangoes to the number of cherries is 4 : 6.

Now, he packs the fruits in bags of four.

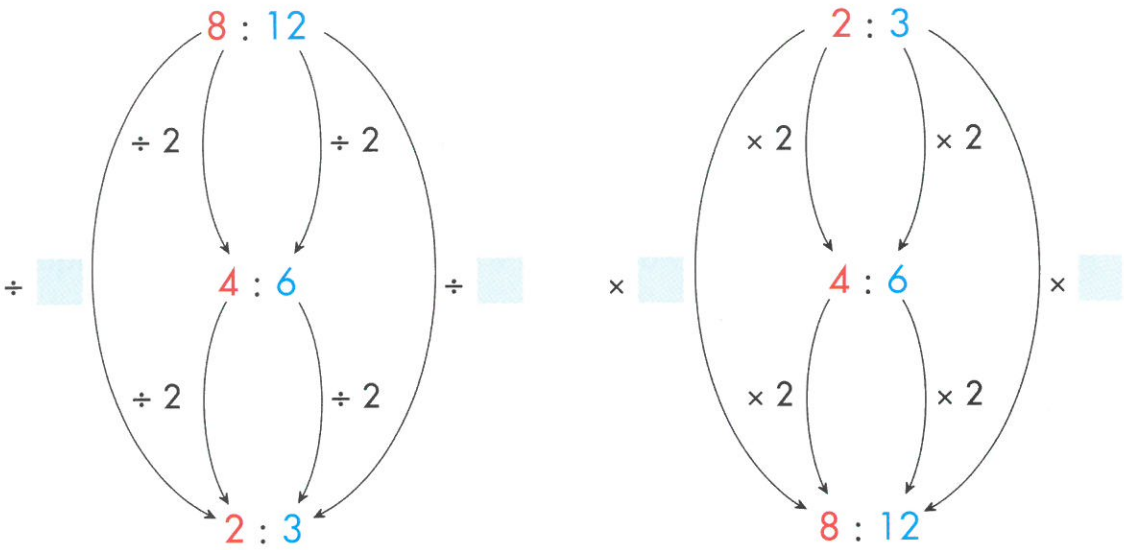




The ratio of the number of mangoes to the number of cherries is 2 : 3.

8 : 12, **4 : 6** and **2 : 3** are **equivalent ratios**.

2 : 3 is the ratio in its simplest form.



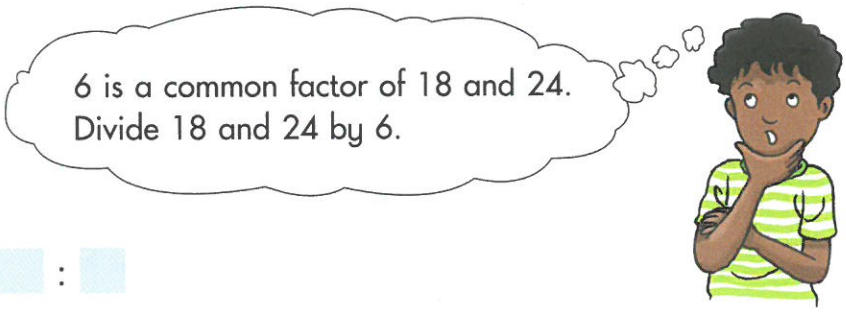
$8 : 12 = 4 : 6 = 2 : 3$

My Notes

A ratio remains unchanged if we divide or multiply its terms by the same number.

1 Express each ratio in its simplest form.

a) 18 : 24 = ☐ : ☐



b) 27 : 9 = ☐ : ☐

2 Find the missing numbers.

a) 12 : 15 = 4 : ☐

b) 3 : 7 = 15 : ☐

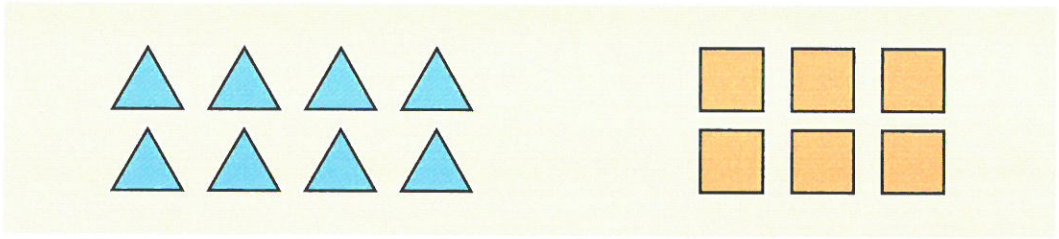
c) 18 : 12 = ☐ : 2

d) 8 : 3 = ☐ : 9

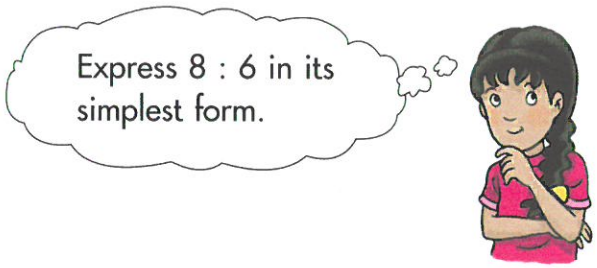
3 Express each ratio in its simplest form.

a) 6 : 16 **b)** 18 : 15 **c)** 15 : 12
d) 16 : 24 **e)** 24 : 36 **f)** 45 : 18

4 Find the ratio of the number of triangles to the number of squares.



8 : 6 = ☐ : ☐



The ratio of the number of triangles to the number of squares is ☐ : ☐.

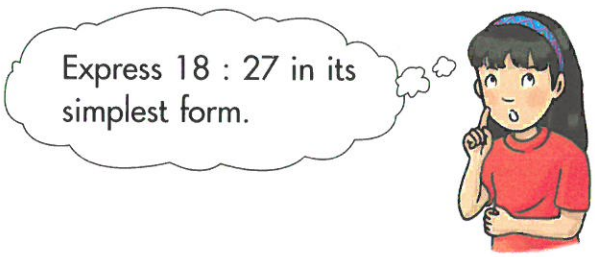
AB 5A Part 2, Activity 5.2

5 There are 45 adults in a restaurant. 18 of them are men. Find the ratio of the number of men to the number of women in the restaurant.

Number of women = 45 − 18
= 27

Number of men = 18

18 : 27 = ☐ : ☐



The ratio of the number of men to the number of women is ☐ : ☐.

6 Bala is 11 years old. Indri is 7 years old. Find the ratio of Bala's age to Indri's age in 3 years' time.

Bala's age in 3 years' time = ☐
Indri's age in 3 years' time = ☐

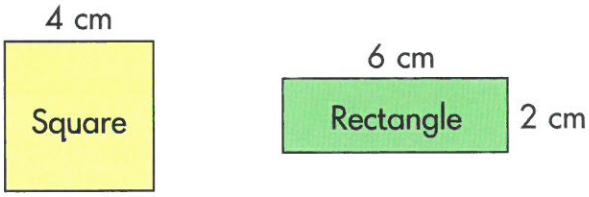
The ratio of Bala's age to Indri's age in 3 years' time is ☐ : ☐.

7 Amanda is 15 years old. She is 9 years younger than Betty. Find the ratio of Amanda's age to Betty's age.

8 There are 44 chickens and ducks on a farm. 28 of them are chickens. What is the ratio of the total number of chickens and ducks to the number of ducks? Give your answer in its simplest form.

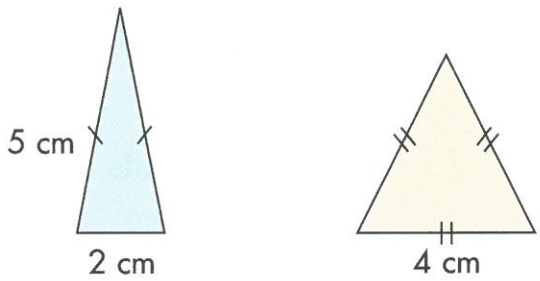
9 There are 30 children in a class. 10 of the children are boys. What is the ratio of the number of girls to the number of boys? Give your answer in its simplest form.

10



Find the ratio of the area of the square to the area of the rectangle.

11



Find the ratio of the perimeter of the equilateral triangle to the perimeter of the isosceles triangle.

AB 5A Part 2, Activity 5.3

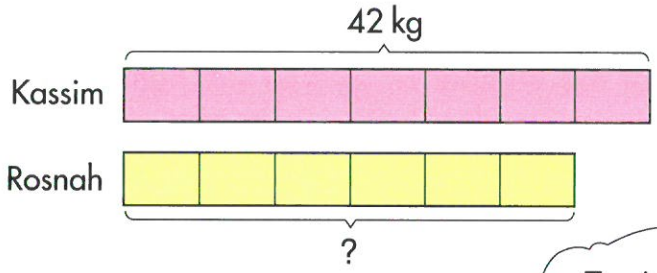
12 Mrs Devi cooks onion soup using the following recipe.

Onion Soup Recipe
(for 4 people)

8 onions
950 ml of water
4 chicken soup cubes
2 teaspoons butter

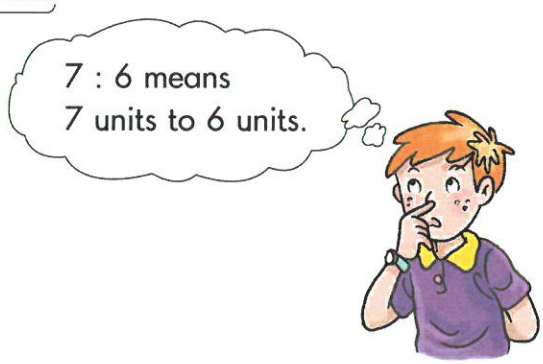
a) How many onions does she need to make soup for **2** people?
b) How many onions does she need to make soup for **5** people?

13 The ratio of Kassim's mass to Rosnah's mass is 7 : 6. Kassim's mass is 42 kg. Find Rosnah's mass.

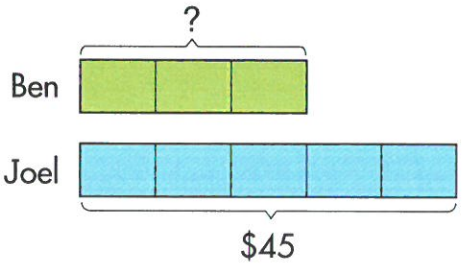


7 units = 42 kg
1 unit = ☐ kg
6 units = ☐ kg

Rosnah's mass is ☐ kg.



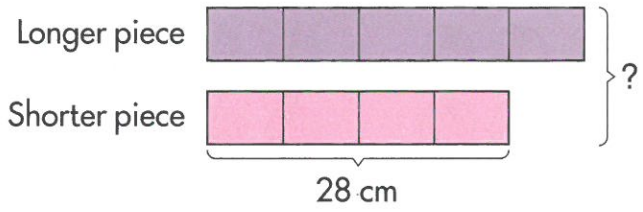
14 Ben and Joel shared an amount of money in the ratio 3 : 5. Joel had $45. How much did Ben get?



5 units = $45
1 unit = $☐
3 units = $☐

Joel received $☐.

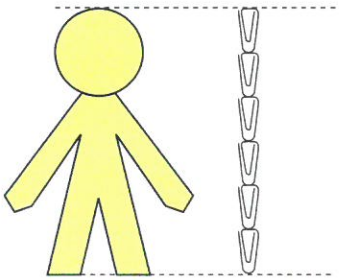
15 Mrs Thomson cuts a piece of ribbon into two pieces in the ratio 5 : 4. The length of the shorter piece is 28 cm. Find the original length of the piece of ribbon.



16 The ratio of the number of runners to the number of swimmers in a school is 4 : 3. There are 24 swimmers. Find the number of runners.

17 Samuel and Clement shared some playing cards in the ratio 5 : 3. How many playing cards did they share if Clement had 27 playing cards?

18 The picture shows the height of Paper Man A measured with paper clips.



Paper Man A

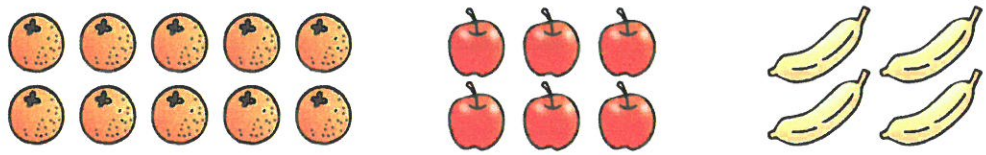
The ratio of Paper Man B's height to Paper Man A's height is 5 : 3. How many paper clips are needed to measure Paper Man B's height?

19 The ratio of the height of Paper Doll A to the height of Paper Doll B is 4 : 5. Caili uses 40 paper clips to measure the height of Paper Doll B. How many paper clips does she need altogether to measure the height of the 2 dolls?

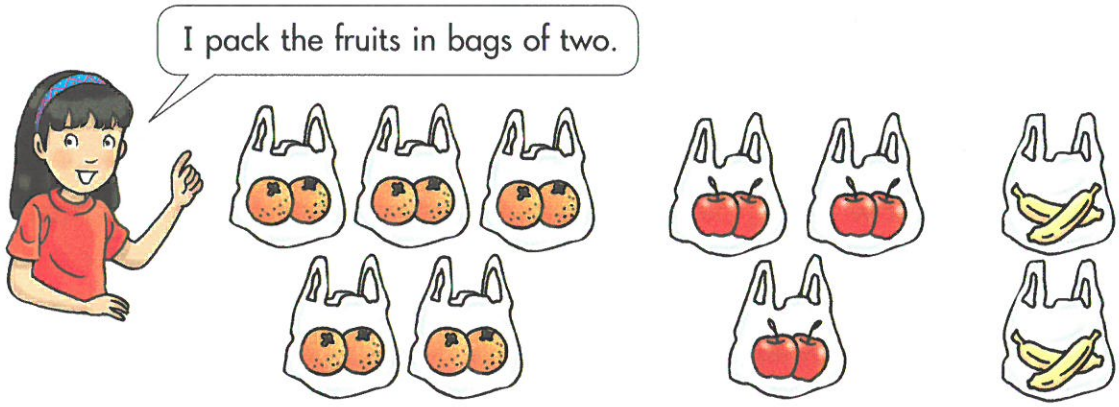
AB 5A Part 2, Activity 5.4

Comparing Three Quantities

Caili has 10 oranges, 6 apples and 4 bananas.



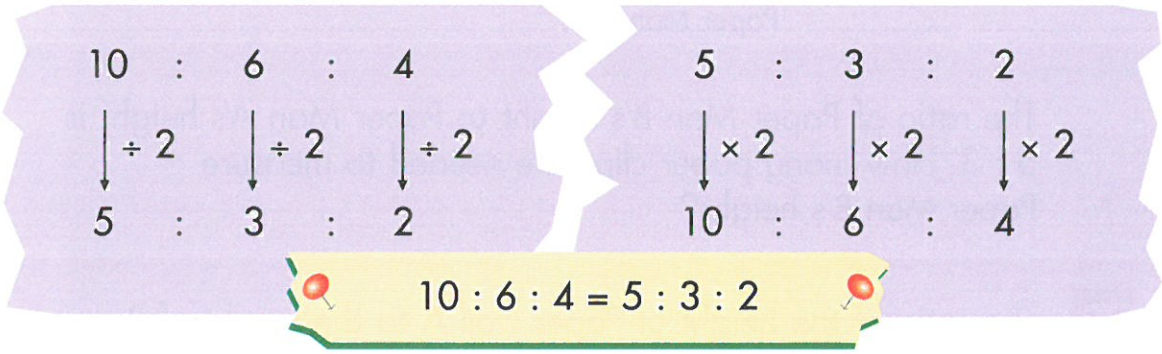
The ratio of the number of oranges to the number of apples to the number of bananas is 10 : 6 : 4.



The ratio of the number of oranges to the number of apples to the number of bananas is 5 : 3 : 2.

10 : 6 : 4 and **5 : 3 : 2** are **equivalent ratios**.

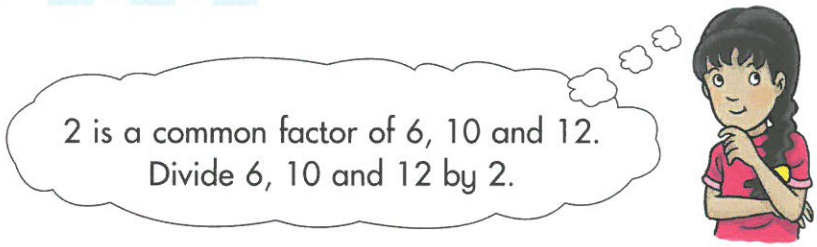
5 : 3 : 2 is the ratio in its simplest form.



What is the ratio of the number of oranges to the number of bananas to the total number of fruits in its simplest form?

1 Express each ratio in its simplest form.

a) 6 : 10 : 12 = ☐ : ☐ : ☐



b) 36 : 24 : 18 = ☐ : ☐ : ☐

2 Find the missing numbers.

a) 8 : 3 : 5 = ☐ : 9 : 15

b) 16 : 28 : 4 = 8 : 14 : ☐

3 Express each ratio in its simplest form.

a) 14 : 7 : 35

b) 21 : 30 : 15

c) 24 : 42 : 54

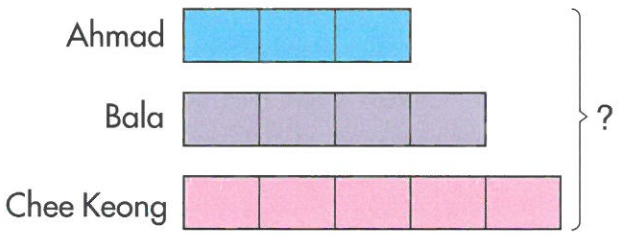
d) 25 : 40 : 30

e) 56 : 48 : 64

f) 81 : 63 : 45

AB 5A Part 2, Activity 5.5

4 Ahmad, Bala and Chee Keong share some money in the ratio 3 : 4 : 5. Given that the biggest share is $20, what is the total amount of money shared?



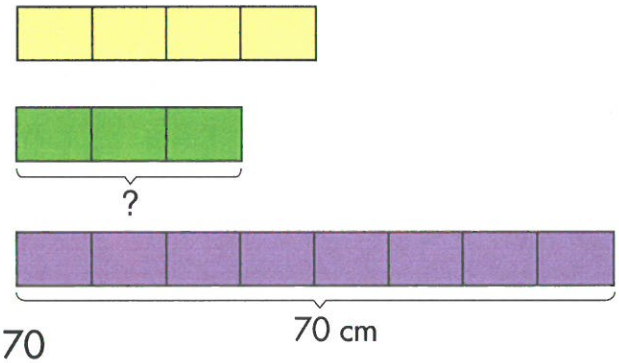
☐ units = $20

1 unit = $☐

☐ units = $☐

The total amount of money shared is $☐.

5 Mr Chong sawed a wooden pole into three parts in the ratio 4 : 3 : 8. The longest part was 70 cm long. Find the length of the shortest part. Give your answer in centimetres correct to 1 decimal place.



□ units = 70

1 unit = □

3 units = 3 × □

= □ ≈ □

The shortest part is □ cm.

6 Ali is 6 times as heavy as Caleb. Bill is twice as heavy as Caleb. What is the ratio of Ali's mass to Bill's mass to Caleb's mass?

7 The ratio of the number of adults to the number of boys to the number of girls in a concert hall is 9 : 6 : 5. There are 63 adults. How many children are there?

8 Ann, Beatrice and Cecilia shared a pack of stickers in the ratio 3 : 9 : 8. Given that the smallest share has 21 stickers, how many stickers did Cecilia receive?

9 There are doctors, lawyers and engineers in a meeting. There are 4 doctors for every 6 engineers. There are 2 lawyers for every 4 doctors.

a) Find the ratio of the number of engineers to the number of doctors to the number of lawyers.

b) Find the ratio of the number of doctors to the number of lawyers to the total number of people at the meeting.

AB 5A Part 2, Activity 5.6

Fun with Maths

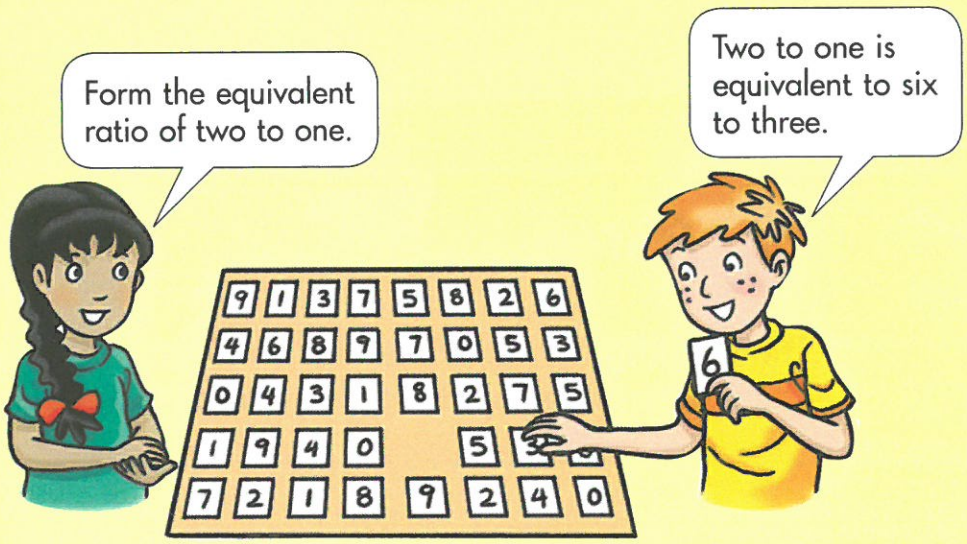
Ratio Game

What you need

Four sets of cards numbered from 0 to 9.

How to play

1. Work in pairs.
2. Shuffle the cards and arrange them face up in five equal rows.
3. Players take turns to pose a ratio for their opponent to form an equivalent ratio using the cards on the table.

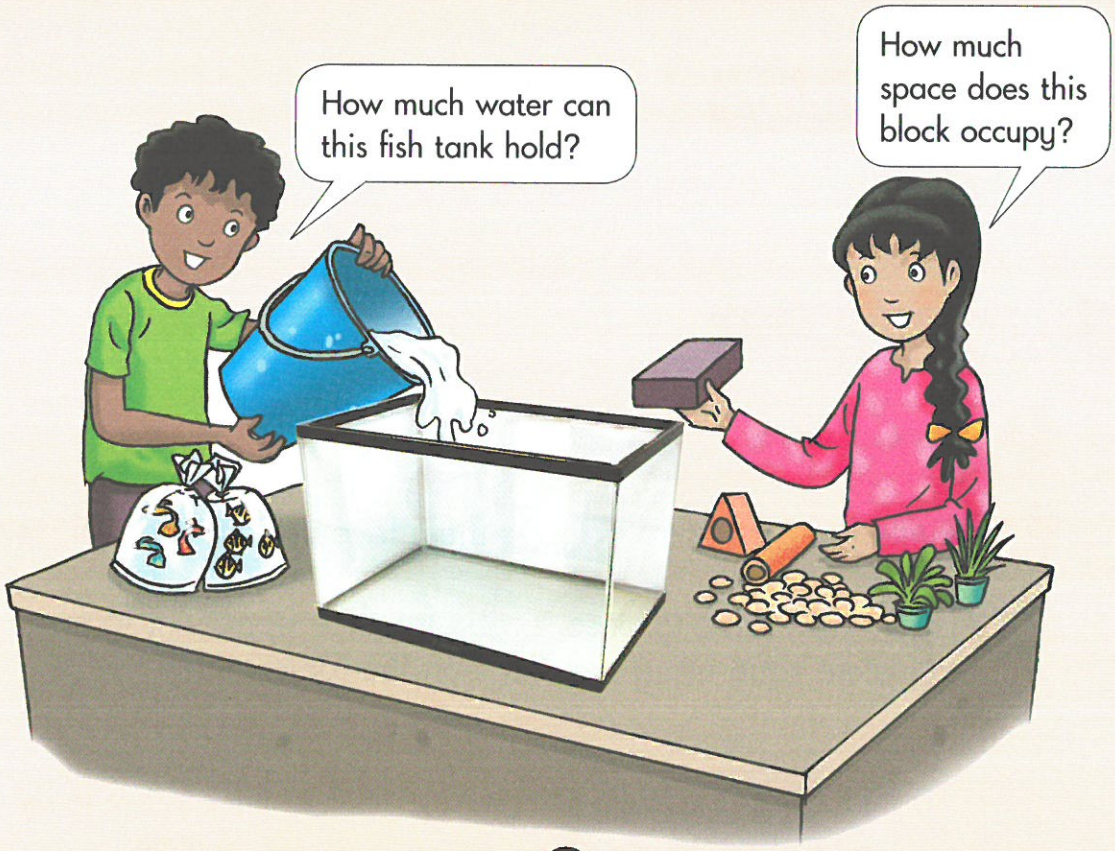


4. Players get to keep the cards if the equivalent ratio they formed is correct.

Who is the player with more cards at the end of the game?

AB 5A Part 2, Let's Find Out 5

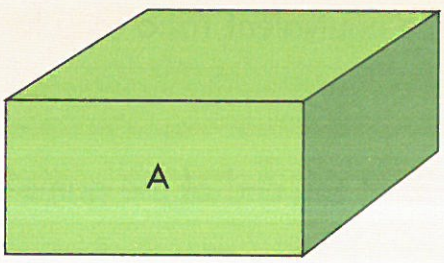
6 Volume

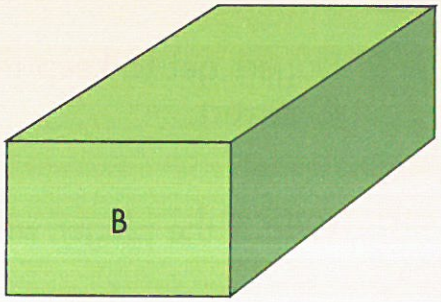


My Notes

The **capacity** of a container is the amount it can hold.
The **volume** of an object is the amount of space it occupies.

Which solid has a larger volume, A or B?

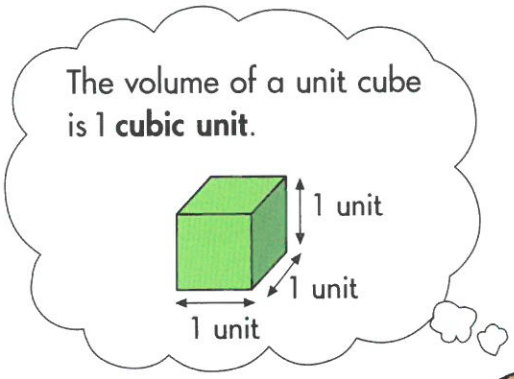


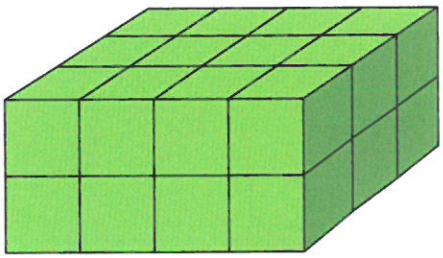


AB 5A Part 2, Recall 6

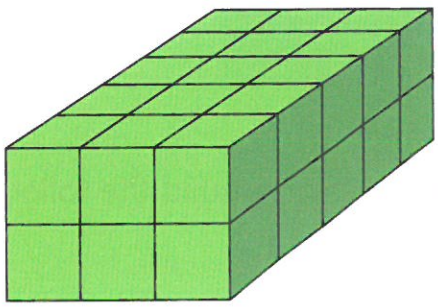
Cubic Units

To find out if Solid A or Solid B has a larger volume, cut the solids into unit cubes.





A



B

The volume of Solid A is 24 cubic units.
The volume of Solid B is 30 cubic units.
Solid B has a larger volume than Solid A.

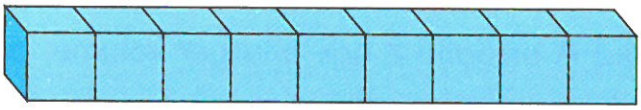
Use unit cubes to build another solid with the same volume as Solid A.

Compare your solid with the ones built by your classmates.
What do you notice?

My Notes

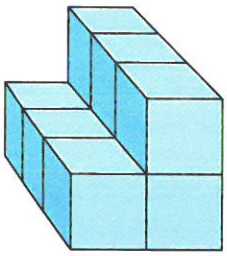
Different solids can have the same volume.

1 a) Use 9 unit cubes to build a solid like the one below.



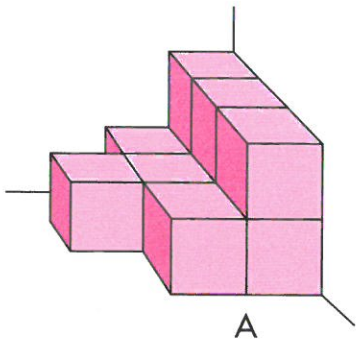
Its volume is ____ cubic units.

b) Rearrange the 9 unit cubes to build another solid like this:

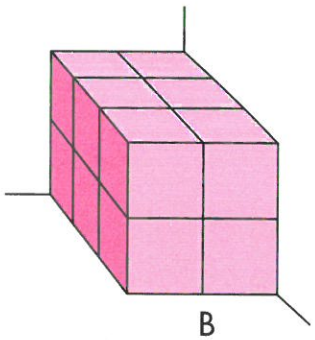


Its volume is ____ cubic units.

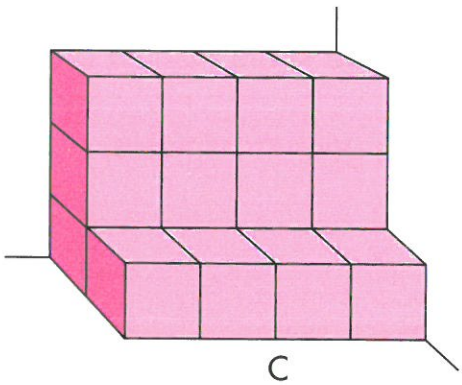
2 Use unit cubes to build the following solids:



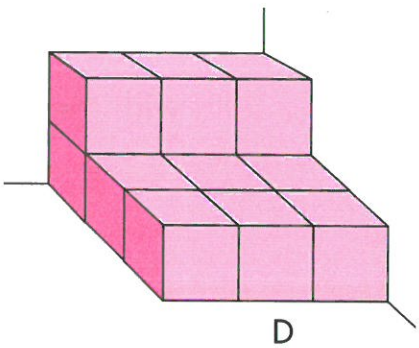
A



B



C

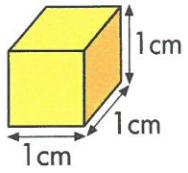


D

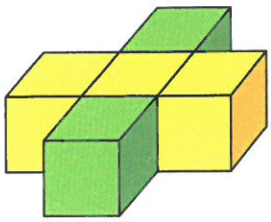
a) What is the volume of each solid?
b) Which solid has the greatest volume?
c) Which solids have the same volume?

AB 5A Part 2, Activity 6.1

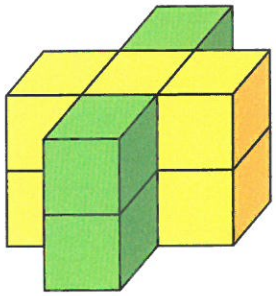
3 **a)** The figure on the right shows a 1-cm cube.
Each edge of the cube is 1 cm long.
The volume of the cube is 1 **cubic centimetre (cm^3)**.



Build a model of the solid on the right using 1-cm cubes. What is the volume of this solid?

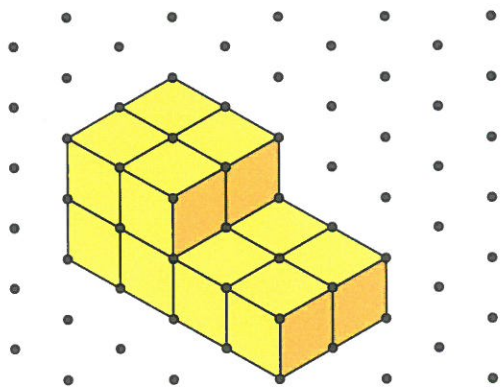


b) Build the solid below. What is its volume?

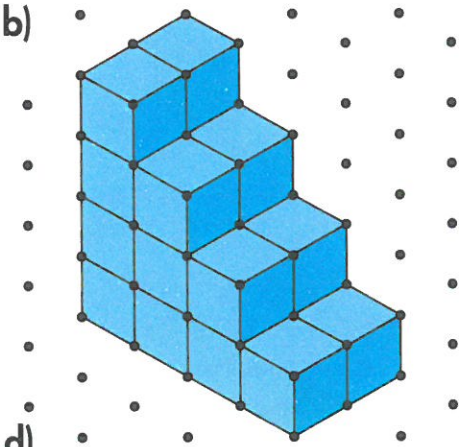


4 The following solids are made up of 1-cm cubes. They are drawn on an isometric grid. Find the volume of each solid.

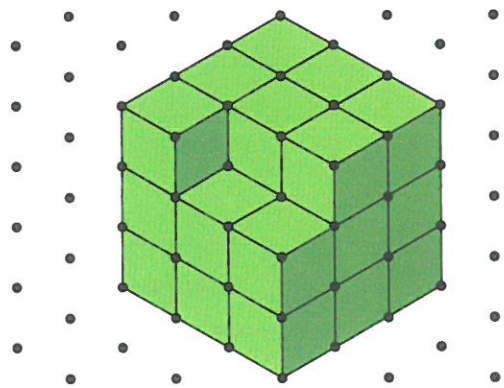
a)



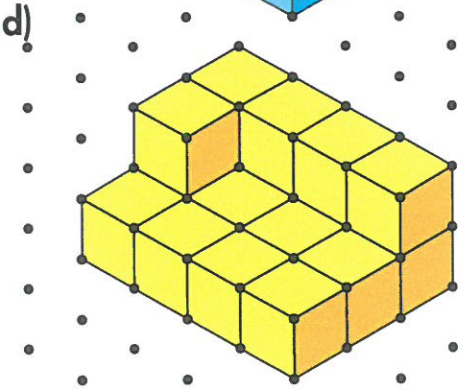
b)



c)



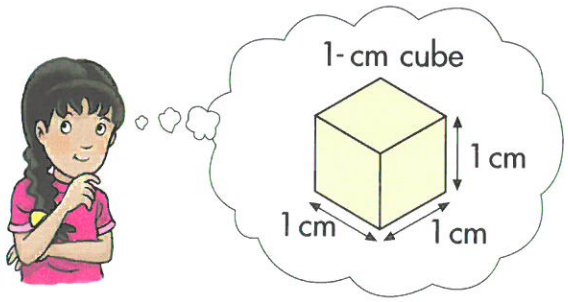
d)

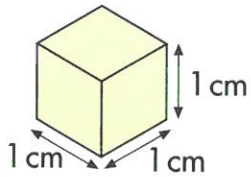


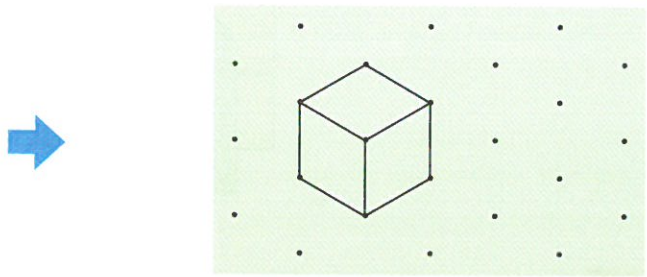
AB 5A Part 2, Activity 6.2

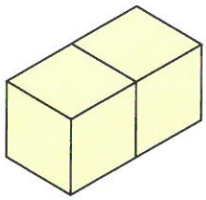
Drawing Cubes and Cuboids on an Isometric Grid

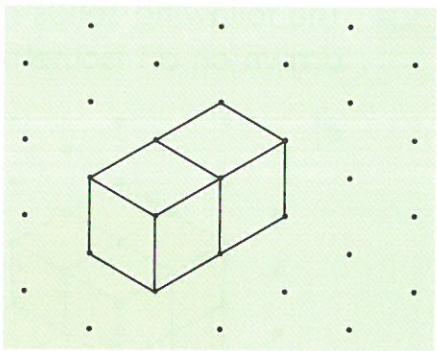
1 Aini draws the following cube and cuboids on isometric grids as shown.

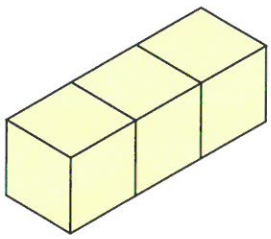


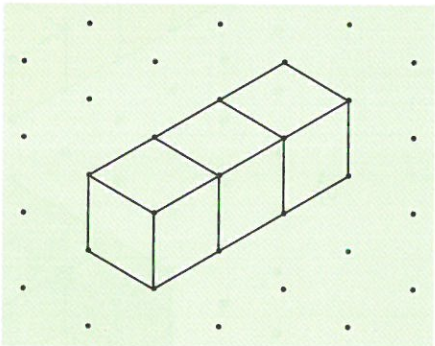


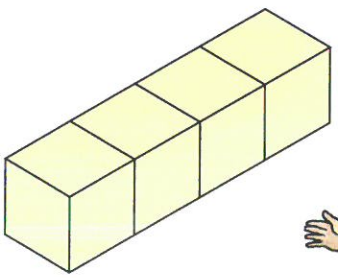






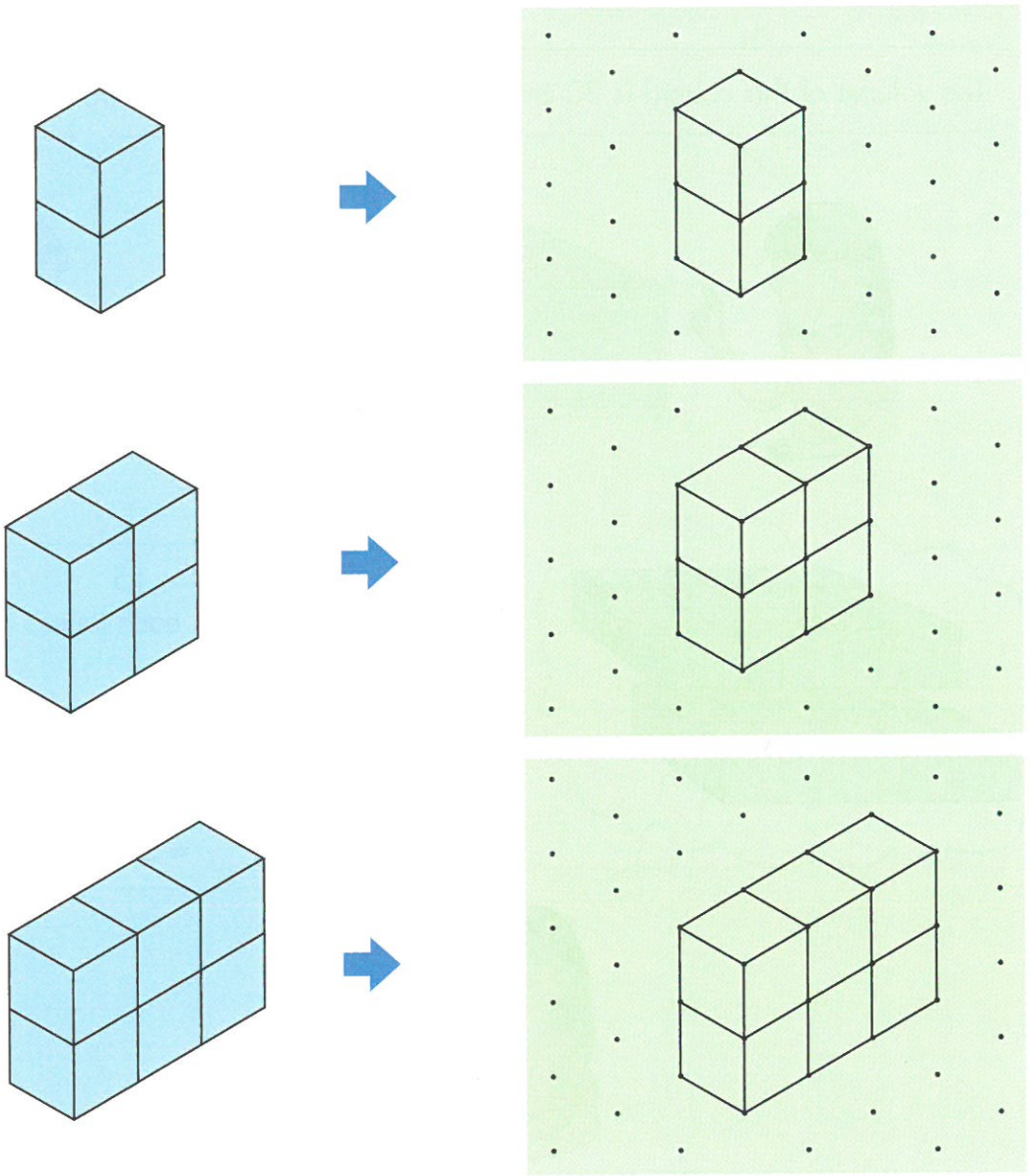


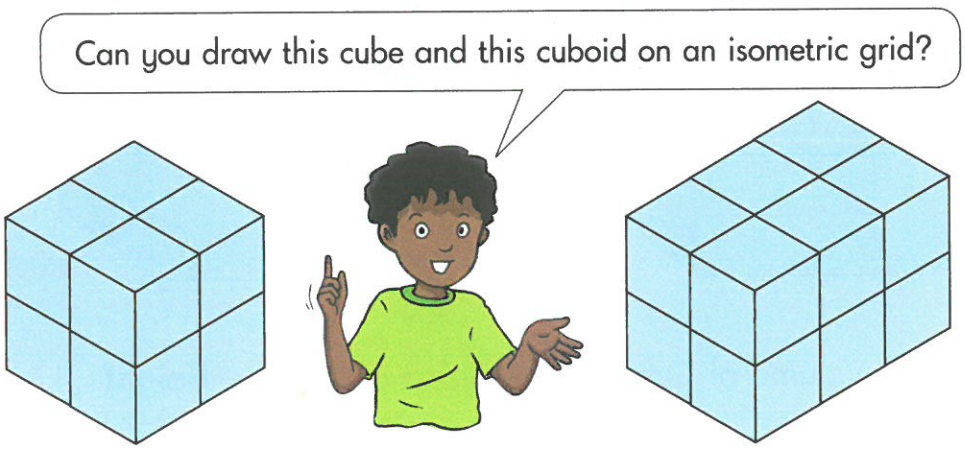




Can you draw this cuboid on an isometric grid?

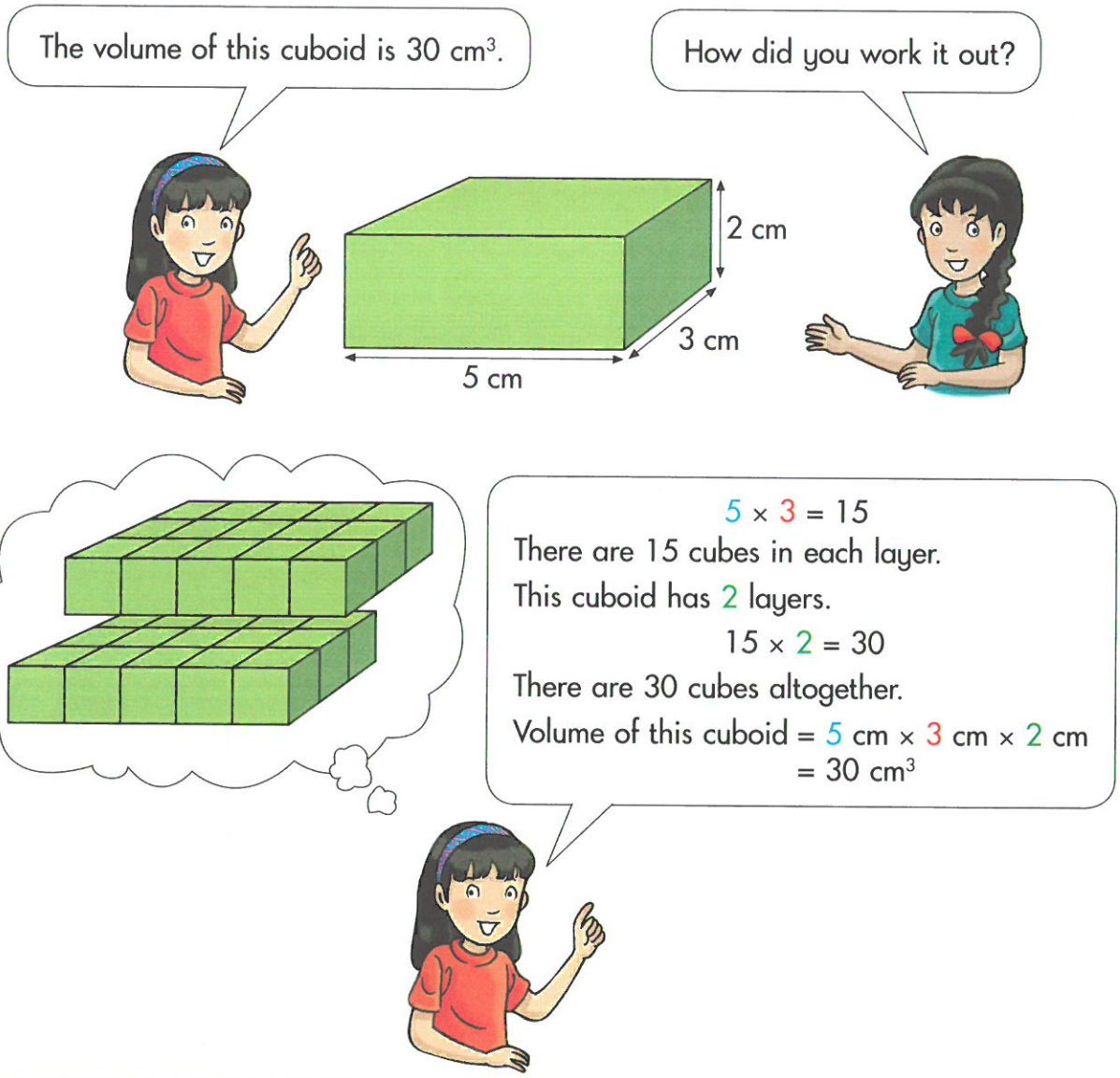
2 Bala draws the following cuboids on isometric grids as shown.



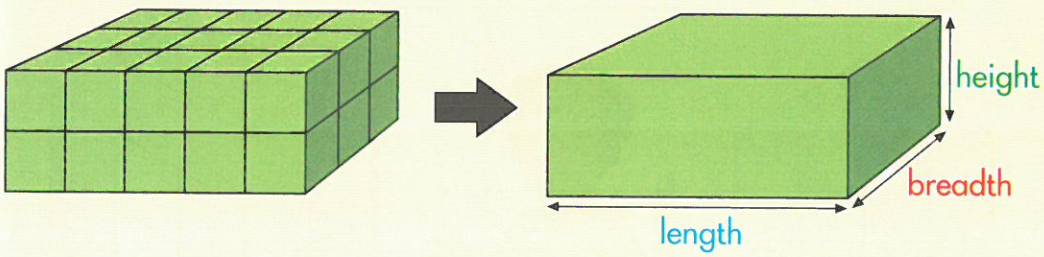


AB 5A Part 2, Activity 6.3

Volume of a Cuboid

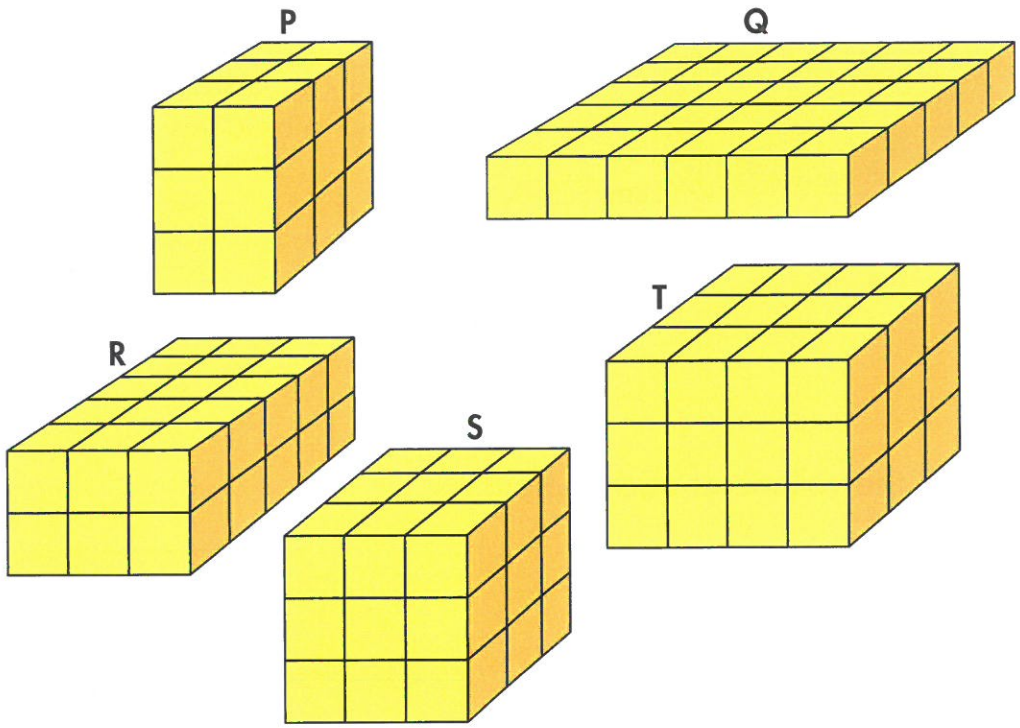


The cuboid measures 5 cm by 3 cm by 2 cm.



Volume of **Cuboid** = **Length** × **Breadth** × **Height**

1 Use 1-cm cubes to build these cuboids.



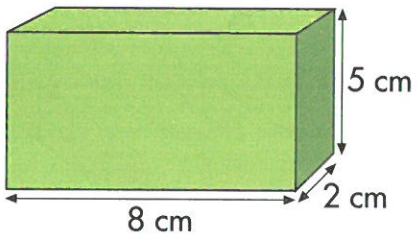
Complete the table.

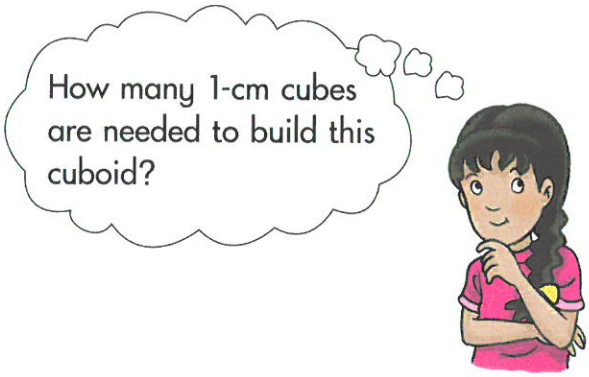
Cuboid	Length (cm)	Breadth (cm)	Height (cm)	Volume (cm^3)
P				
Q				
R				
S				
T				

Cuboid ____ has the same length, breadth and height. It is a cube.

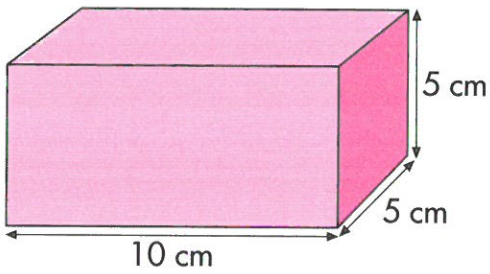
Volume of **Cube** = Length × Length × Length

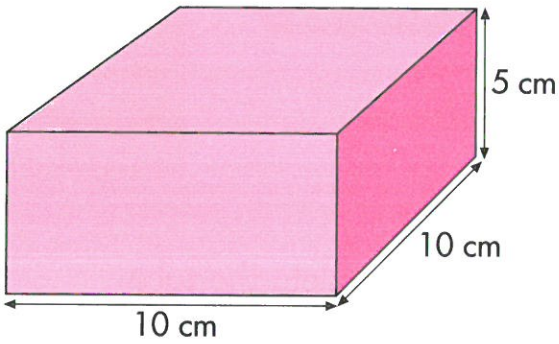
2 The cuboid measures 8 cm by 2 cm by 5 cm. Find its volume.



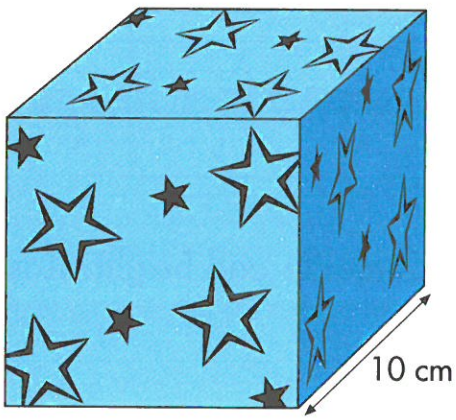


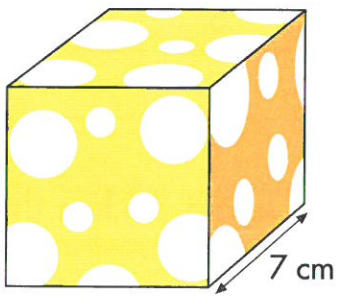
3 Find the volume of each cuboid.





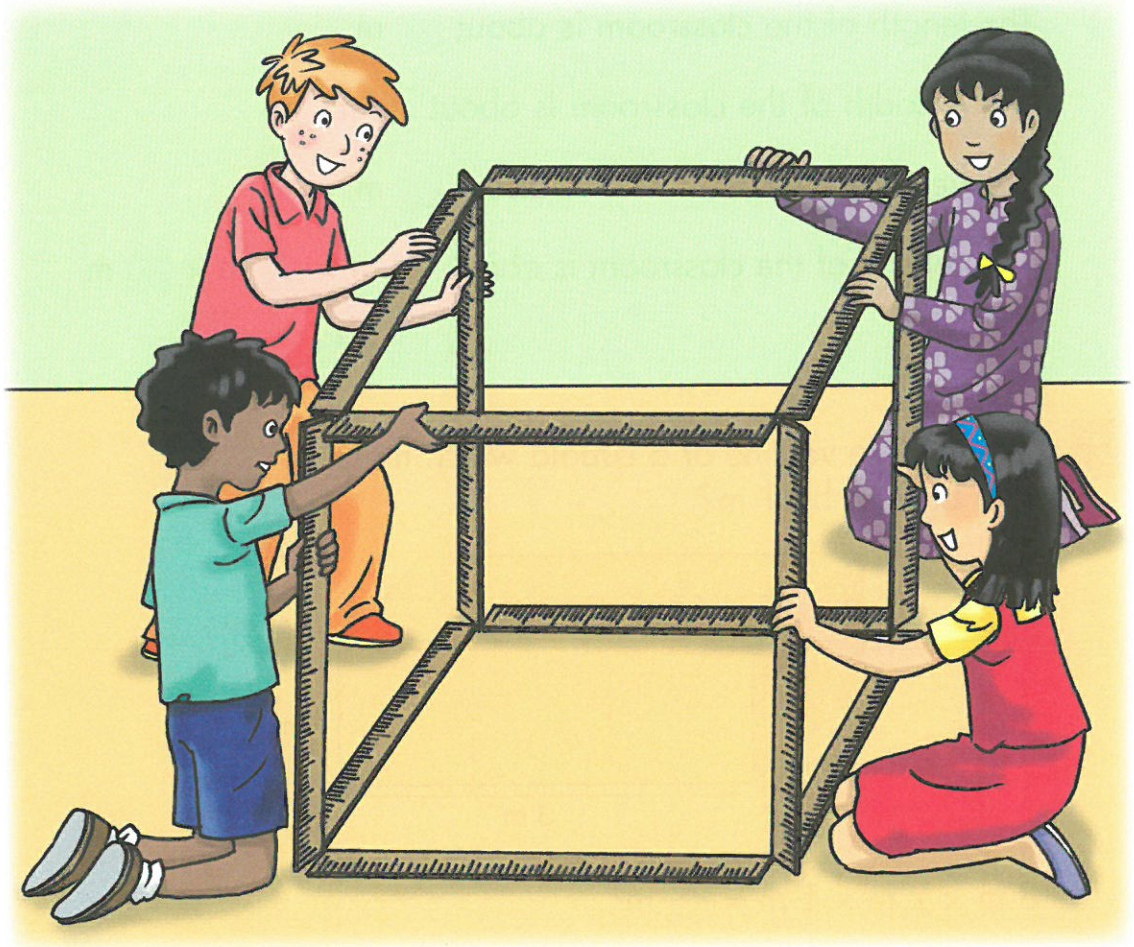
4 These boxes are cubes. Find the volume of each box.





AB 5A Part 2, Activity 6.4

5 The children build a frame for a cube using twelve 1-metre rulers as shown.



The largest cube that can fit into the frame has a volume of 1 **cubic metre (m^3)**.

Use the formula you have learnt to find the volume of this cube.
Volume of **Cube** = Length × Length × Length

= ☐ m × ☐ m × ☐ m

= ☐ m^3

6 Estimate the length, breadth and height of your classroom in metres. Then find the volume of the classroom.

The length of the classroom is about ____ m.

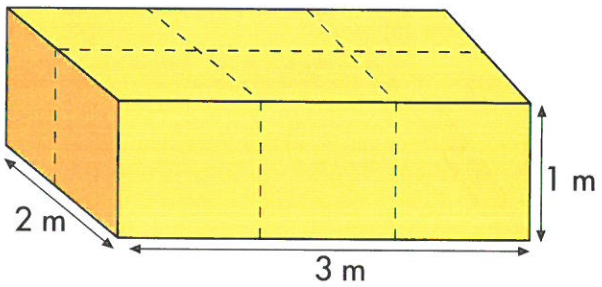
The breadth of the classroom is about ____ m.

The height of the classroom is about ____ m.

The volume of the classroom is about ____ m × ____ m × ____ m

= ____ m^3

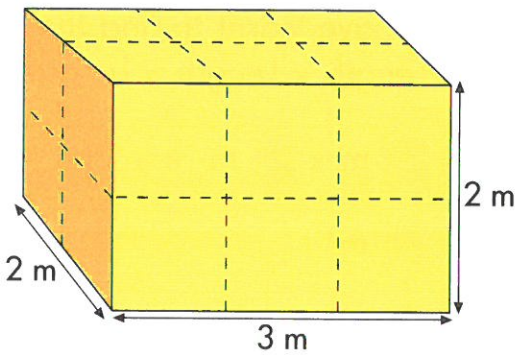
7 What is the volume of a cuboid which measures 3 m by 2 m by 1 m?



3 m × 2 m × 1 m = ____ m^3

The volume of the cuboid is ____ m^3.

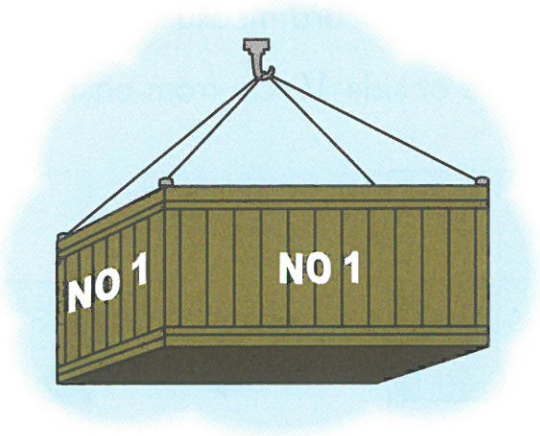
8 Find the volume of the cuboid below.



3 m × 2 m × 2 m = ____ m^3

The volume of the cuboid is ____ m^3.

9 The container below is in the shape of a cuboid. It measures 9 m by 2 m by 3 m. Find its volume.

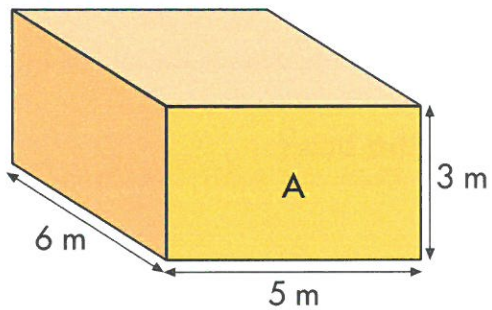


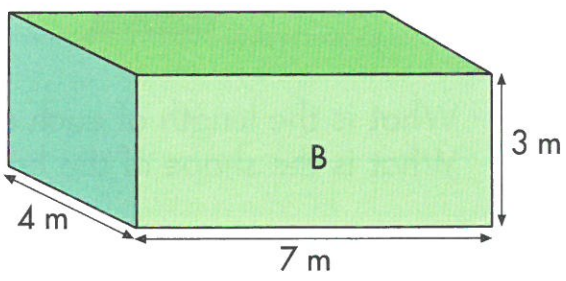
Volume = ____ m × ____ m × ____ m

= ____ m^3

The volume of the container is ____ m^3.

10 Find the volume of each of the following cuboids. Which cuboid has a larger volume?



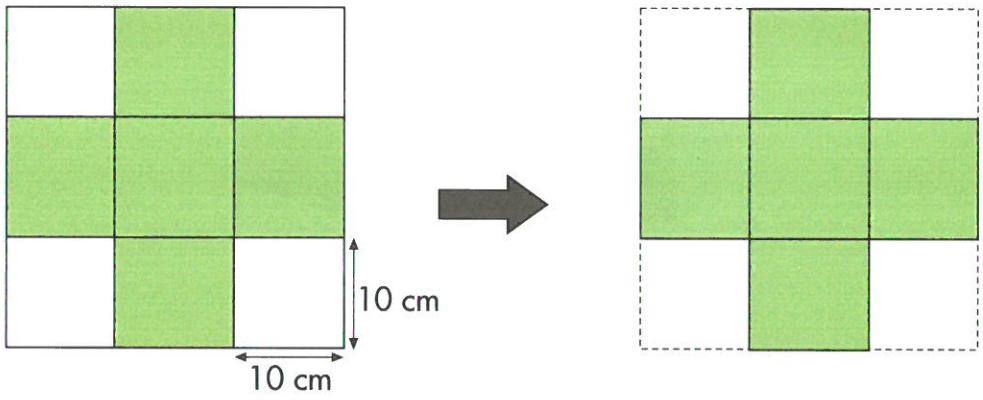


AB 5A Part 2, Activity 6.5

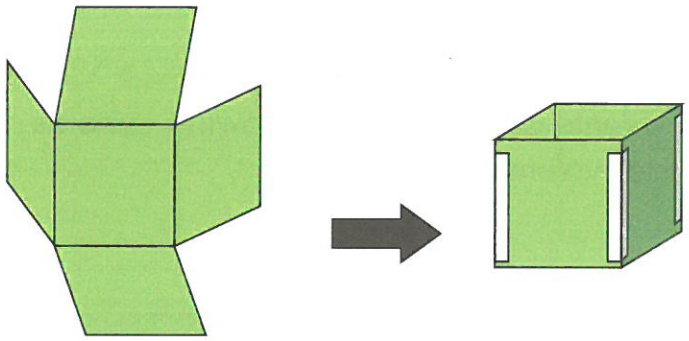
Litres, Millilitres and Cubic Centimetres

a) Take a piece of square card measuring 30 cm by 30 cm.

b) Cut out a square of side 10 cm from each corner of the card.



c) Fold the remaining piece to form an open box as shown.
Tape the edges to hold the faces together firmly.



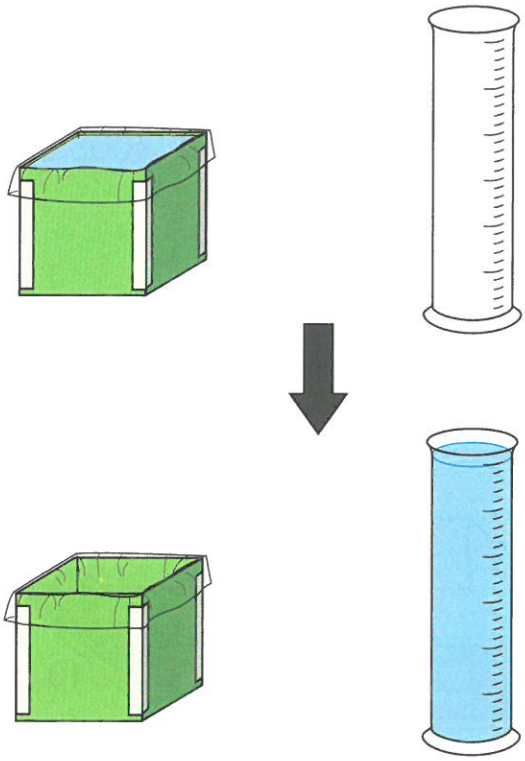
What is the length of each edge of the box?
What is the shape of the box?

The volume of the box is ____ cm^3.

d) Place a plastic bag in the open box.

e) Fill the plastic bag with water until the water reaches the brim of the box.

f) Next, pour all the water into a large measuring cylinder.



g) Compare the volumes. What do you notice?

$\square$ cm^3 = $\square$ l

1 l = 1000 ml

My Notes

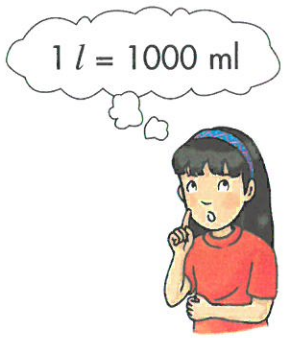
These volumes are equal:

1000 cm^3 = $\square$ l

$\square$ cm^3 = 1 ml

1 Express in cubic centimetres.

a) 1 ml
b) 400 ml
c) 2 *l*
d) 3 *l* 200 ml

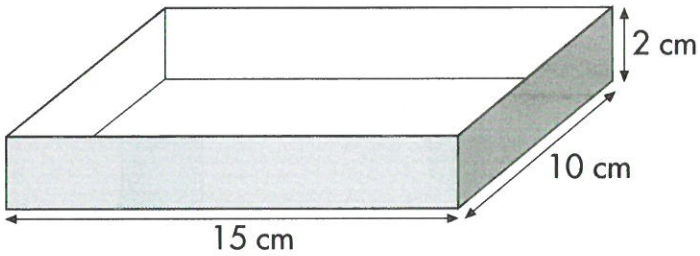


2 Express in litres and millilitres.

a) 2000 cm^3
b) 2650 cm^3
c) 3050 cm^3
d) 4008 cm^3

3 A rectangular tin measures 15 cm by 10 cm by 2 cm.

a) How many millilitres of water can it hold?
b) What is the capacity of the tin?



a) Volume of the tin = ☐ cm × ☐ cm × ☐ cm

= ☐ cm^3

= ☐ ml

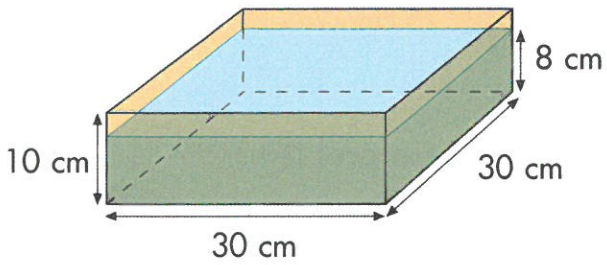
It can hold ☐ ml of water.

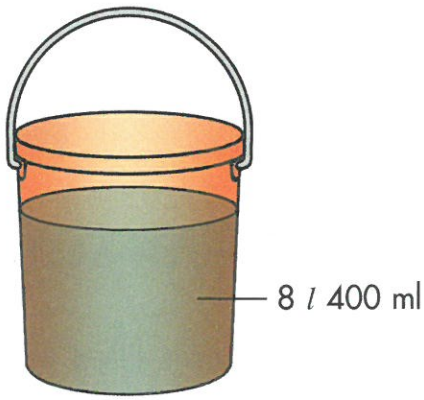
b) The capacity of the tin is ☐ ml.

AB 5A Part 2, Activity 6.6

Solving Word Problems

Caili has two containers.
Which container has more water, the rectangular tank or the pail?
How much more?





Volume of water in the rectangular tank = ☐ cm × ☐ cm × ☐ cm

= ☐ cm^3

= ☐ ml

Volume of water in the pail = 8 *l* 400 ml

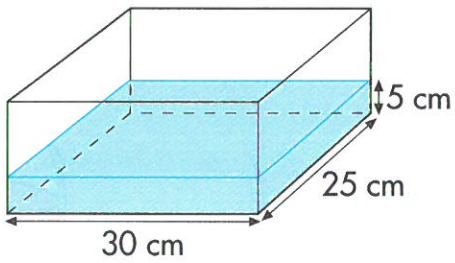
= ☐ ml

☐ ml – ☐ ml = ☐ ml

The ☐ has ☐ ml more water than the ☐.

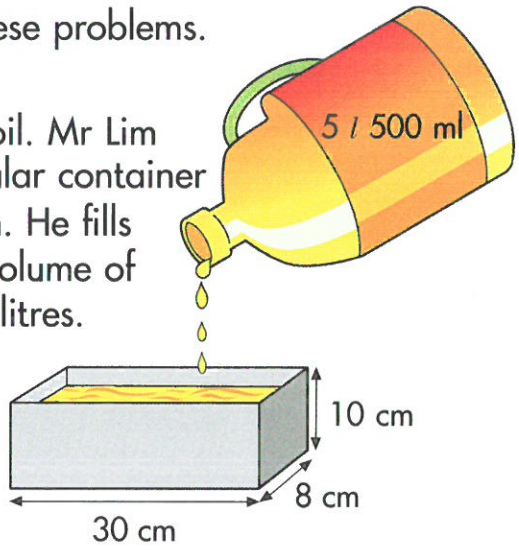
1 A rectangular container measuring 20 cm by 30 cm by 10 cm is filled to the brim with oil. Bala pours out 2 *l* 500 ml of oil from the container. How much oil is left in the container now?

2 The fish tank below is filled with water to a depth of 5 cm. Bala pours another 4 *l* of water into the tank. How much water is there in the tank now? Give your answer in litres and millilitres.



You may use a calculator to solve these problems.

3 A bottle is filled with 5 *l* 500 ml of oil. Mr Lim pours the oil into an empty rectangular container measuring 30 cm by 8 cm by 10 cm. He fills the container to the brim. Find the volume of oil left in the bottle in litres and millilitres.

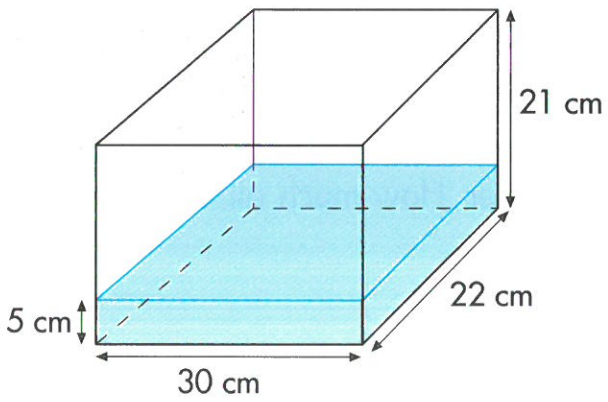


4 **a)** A rectangular tank measures 30 cm by 22 cm by 21 cm. It is filled with water to a height of 5 cm.

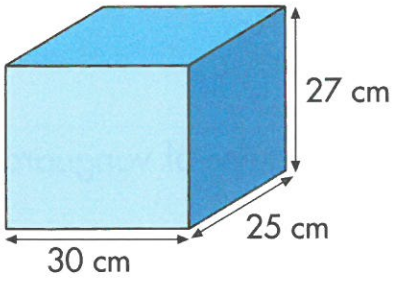
i) What is the capacity of the tank?

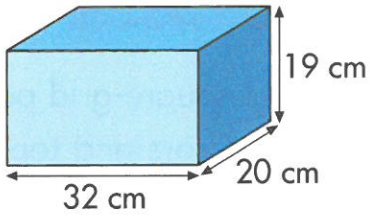
ii) How much more water is needed to fill the tank completely? Give your answer in litres and millilitres.

b) Find the answer to part **ii)** in another way.



5 Two rectangular containers are completely filled with water. Elaine pours all the water in both containers into an empty tank. What is the volume of water in the tank? Give your answer in litres and millilitres.

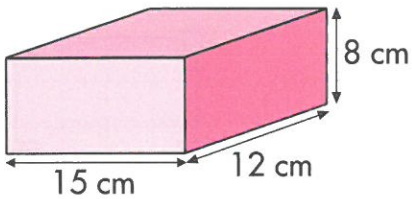




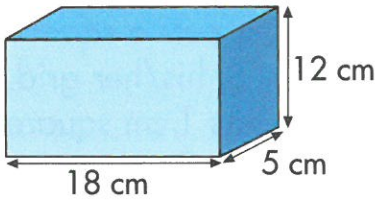
6 Hamid pours 8 small containers of water into an empty tank measuring 33 cm by 31 cm by 29 cm. The capacity of each container is 3 litres.
How much more water does he need to fill the tank completely? Give your answer in litres and millilitres.

7 The pictures below show three different containers of detergent for sale at $2.75 each. Which is the best buy? Explain your choice.

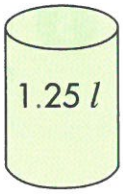
Detergent A



Detergent B



Detergent C



8 A rectangular tank measuring 45 cm by 40 cm by 40 cm is half filled with water. Mr Gopal then turns on a tap. Every 1 minute, 12 litres of water flow from the tap to the tank. How long will it take to fill the tank to its brim?

AB 5A Part 2, Activity 6.7

Fun with Maths

Boxes

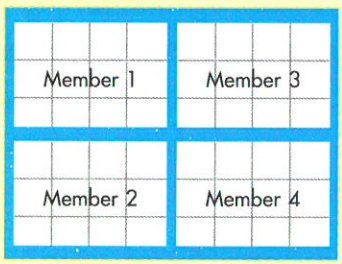
What you need

4 sheets of square-grid paper, glue, one piece of vanguard sheet, a pair of scissors and tape.

What to do

1. Work in groups of four.

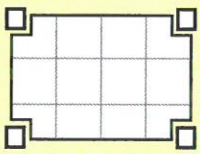
2. Paste the four sheets of square-grid paper on the vanguard sheet.



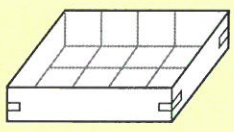
3. Cut out the sheets, one for each team member.

4. Each member draws the largest rectangle on their square-grid paper. What is the length and the width of the rectangle? Cut out the rectangle.

5. Each member cuts a square from each corner of his/her grid.
Member 1 cuts 1-cm squares.
Member 2 cuts 2-cm squares.
Member 3 cuts 3-cm squares.
Member 4 cuts 4-cm squares.



6. Each member folds up the sides of the remaining grid paper and tapes the sides to form an open box as shown.



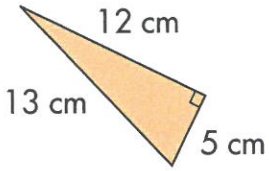
- Which member has the smallest area of the remaining grid paper?
- Does his/her box also have the smallest volume?
- Whose box has the largest volume?

AB 5A Part 2, Let's Find Out 6

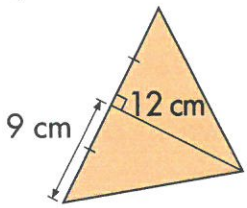
Review B

1 Find the area of each shaded triangle.

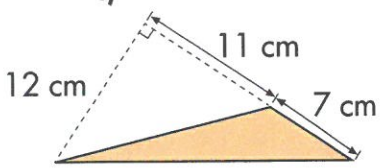
a)



b)

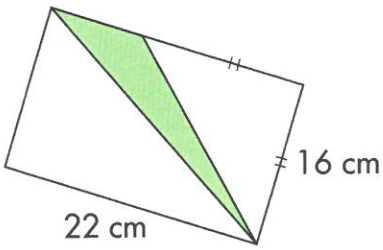


c)

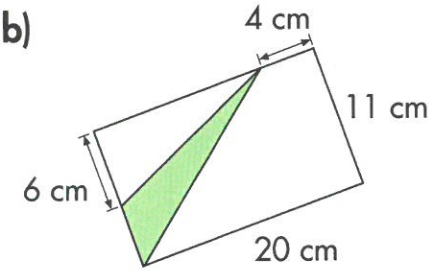


2 Find the area of the shaded part in each rectangle.

a)

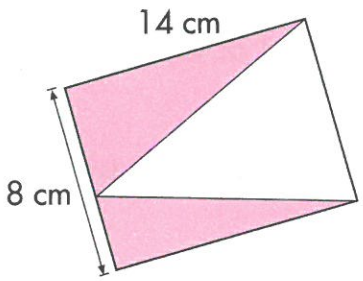


b)

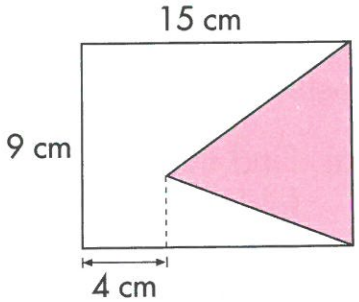


3 Find the area of the shaded part(s) in each rectangle.

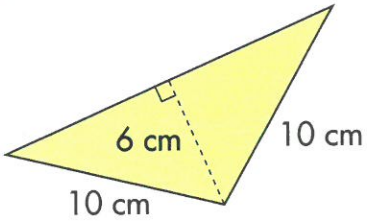
a)



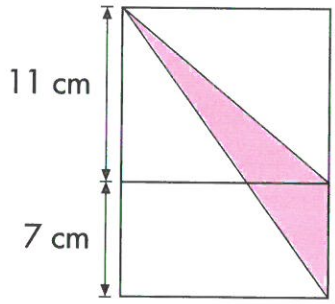
b)



4 The perimeter of the triangle below is 36 cm.
Find the area of the triangle.

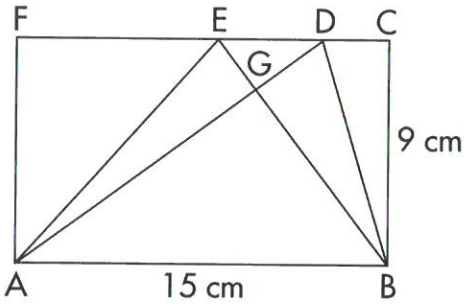


5 The figure shows a square of side 11 cm and a rectangle. Find the area of the shaded part in the figure.



6 Two triangles are drawn in a rectangle as shown. The area of Triangle ABG is 50 cm^2.

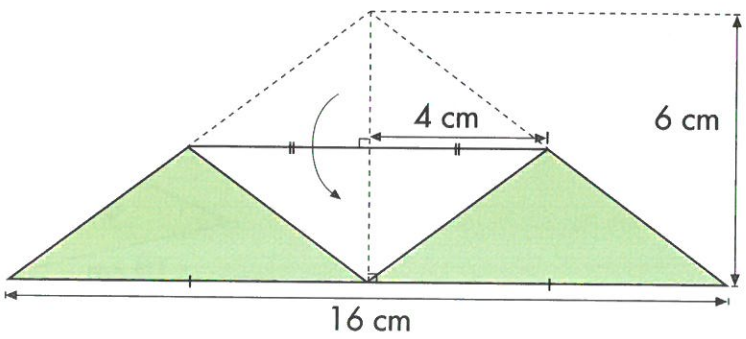
a) Find the area of Triangle AEG.
b) Find the area of Triangle BDG.
What do you notice about the areas of these two triangles?



7 A triangular piece of paper is folded at one corner as shown below. It is then placed on a table.

a) Find the area of the table top that is occupied by the folded piece of paper.

b) Find the total area of the two shaded triangles.



8 The table below shows the number of boys and the number of girls in a Primary 5 class.

	Number of pupils who wear glasses	Number of pupils who do not wear glasses
Boys	8	12
Girls	10	
Total		

a) Find the ratio of the number of boys who wear glasses to the number of boys who do not wear glasses. Express the ratio in its simplest form.

b) The ratio of the number of boys who do not wear glasses to the number of girls who do not wear glasses is 6 : 5. How many girls do not wear glasses?

c) Find the ratio of the number of boys who wear glasses to the number of girls who wear glasses to the total number of pupils who wear glasses. Express the ratio in its simplest form.

9 The ratio of Claudia's age to her mother's age is 1 : 10. Given that Claudia is 4 years old, find her mother's age.

10 On the eve of a public holiday, the number of people watching Show A to the number of people watching Show B was in the ratio 5 : 8. There were 280 people watching Show B. How many people were watching Show A?

11 Mr Jonathan gave a sum of money to his wife and 3 children in the ratio 4 : 9. His wife received $500. How much did each of his children receive if each of them was given an equal amount of money?

12 The lengths of the sides of a triangle are in the ratio 3 : 4 : 5. Given that the shortest side is 24 cm, find the longest side.

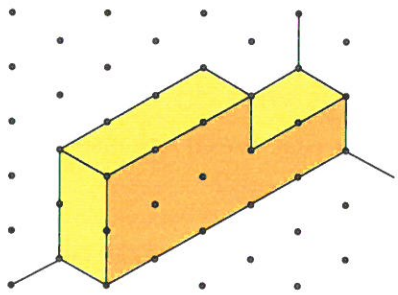
13 In a storeroom, the ratio of the number of blue bean bags to the number of red bean bags is 2 : 3. There are 120 red bean bags.

a) Find the number of blue bean bags.

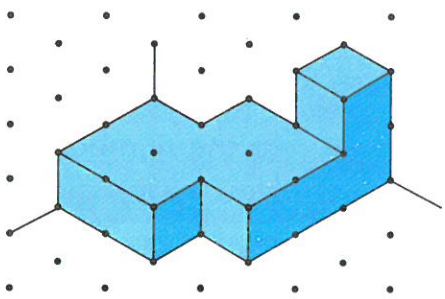
b) There are 60 yellow bean bags. Find the ratio of the number of red bean bags to the number of blue bean bags to the number of yellow bean bags.

14 How many unit cubes are used to build each of these solids? What is the volume of each solid in cubic units?

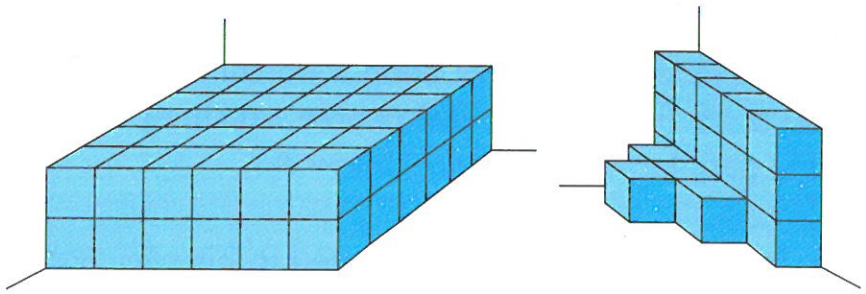
a)



b)



15 The following solids are made up of 1-cm cubes. How many 1-cm cubes are used to build each solid? What is the volume of each solid?



16 Express in litres and millilitres.

a) 3000 cm^3 **b)** 2750 cm^3 **c)** 3075 cm^3

17 Express in cubic centimetres.

a) 2 *l* 500 ml **b)** 3 *l* 50 ml **c)** 4 *l* 8 ml

Summary

1 Whole Numbers

- We use $\approx$ to represent 'approximately equal to'.
- To round off a number to the nearest thousand, study the digit in the hundreds place.
  If it is 5 or greater than 5, round up.
  If it is smaller than 5, round down.
- When you multiply a number by 10, 100 or 1000, there are as many zeroes in the product as there are in the factors.

2 Operations On Whole Numbers

- Standard order of operations:
  Step 1 — Do the operations in brackets.
  Step 2 — Multiply and/or divide from left to right.
  Step 3 — Add and/or subtract from left to right.

3 Fractions

- $\frac{1}{3}$, $\frac{1}{4}$ and $\frac{1}{6}$ do not have the same denominator. They are **unlike fractions**.
- $\frac{4}{12}$, $\frac{3}{12}$ and $\frac{2}{12}$ have the same denominator. They are **like fractions**.
- To add or subtract unlike fractions:
  Step 1 — Change them to like fractions (use the idea of equivalent fractions).
  Step 2 — Add or subtract the like fractions.
- When multiplying fractions, multiply the numerators and then multiply the denominators. Write the answer in the simplest form.
- Dividing by 4 is the same as multiplying by $\frac{1}{4}$.

4 Area of Triangle

- The height of a triangle is **perpendicular** to its base.
- Area of triangle $= \frac{1}{2} \times$ Area of related rectangle

  $= \frac{1}{2} \times$ Base $\times$ Height

5 Ratio

- We read the ratio **3 : 2** as **3 to 2**. Ratio does not have units.
- A ratio remains unchanged if we divide or multiply its terms by the same number.

6 Volume

- The **capacity** of a container is the amount it can hold.
- The **volume** of an object is the amount of space it occupies.
- Different solids can have the same volume.
- These volumes are equal:
  $1000\ cm^3 = 1\ l$
  $1\ cm^3 = 1$ ml

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