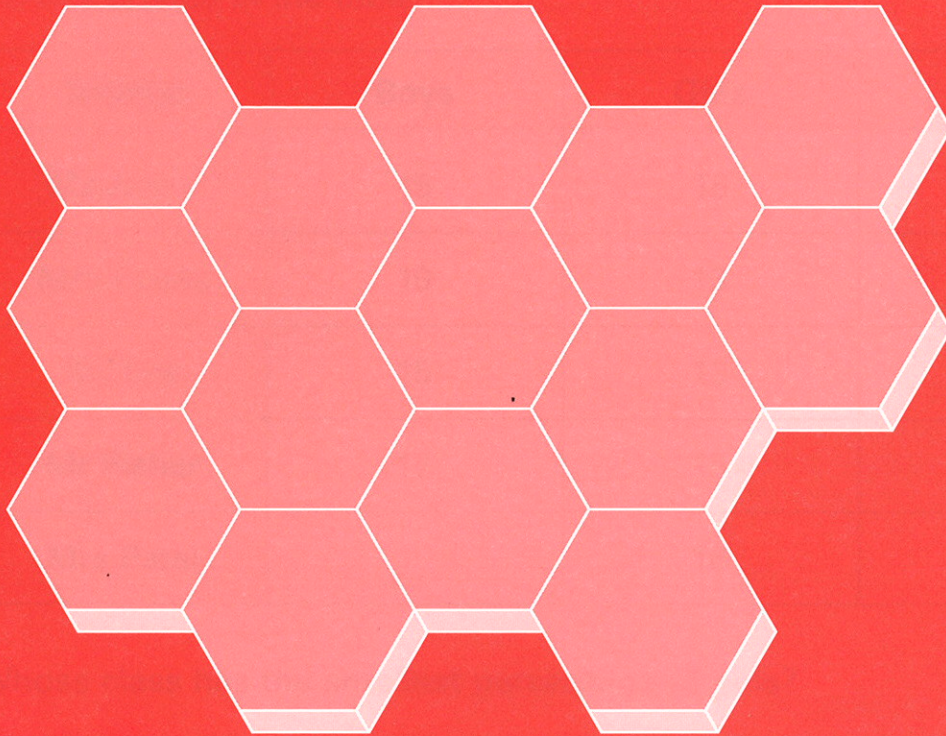


# Progress in Maths 14

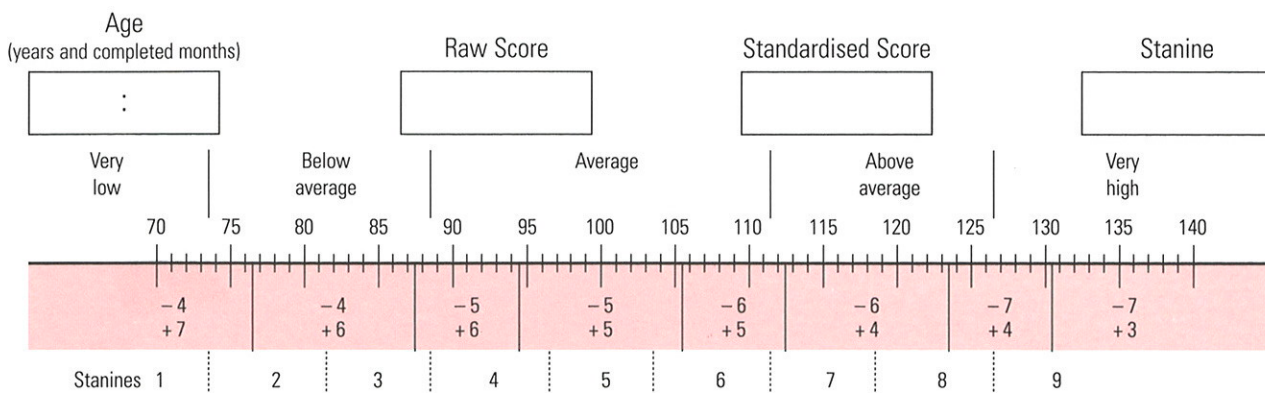


Affix label here if supplied:

Name				
Date of birth	<input type="text"/>	<input type="text"/>	<input type="text"/>	Boy <input type="radio"/>
Date of test	<input type="text"/>	<input type="text"/>	<input type="text"/>	Girl <input type="radio"/>
School				
Class				
Pupil number				

#### Note to teachers

Fill in the boxes and mark the standardised score on the scale. Then add and subtract the numbers given below the scale for that score range. Mark the interval with a broad horizontal line. This gives the 90 per cent confidence interval (you can be 90 per cent certain that the pupil's 'true score' is in this band). Full details are given in the Teacher's Guide in the chapter 'Interpreting and using test results'.







1

This table shows some information about the numbers of pupils in five classes.

(a) Fill in the gaps in the table.

Teacher	Boys	Girls	Total
Ms Ayole	15	16	_____
Mrs Evans	19	13	32
Mr Lee	15	13	28
Mr Fisher	17	15	32
Mrs Patel	_____	16	28

(b) Whose class has the **smallest percentage of girls**?

Put a ring around your answer.

Ms Ayole      Mrs Evans      Mr Lee      Mr Fisher      Mrs Patel

2

James is thinking of two numbers.



When I **add** my **two numbers** together I get **29**.

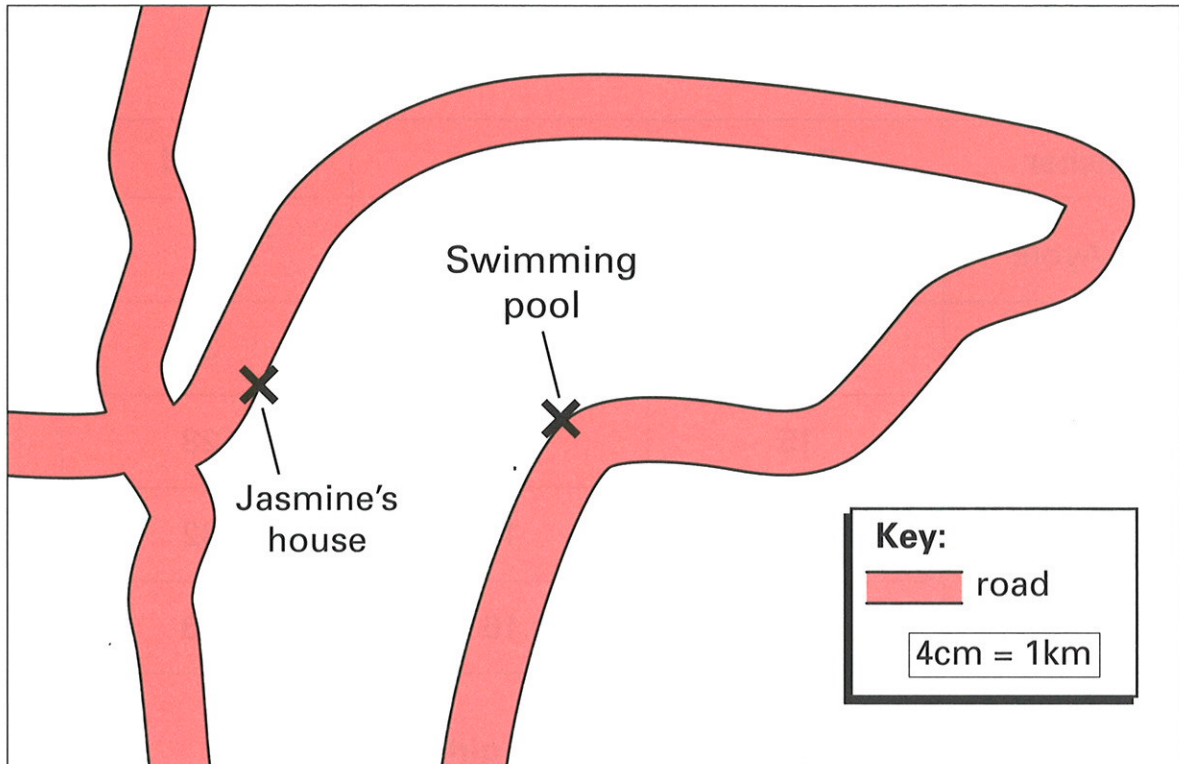
When I **multiply** my **two numbers** together I get **208**.

**What are James's two numbers?**

Answer \_\_\_\_\_ and \_\_\_\_\_



The map shows Jasmine's house and a swimming pool.



Jasmine cycled along the road from her **house** to the **swimming pool**.

About **how far** did Jasmine cycle?

Give your answer to the nearest kilometre.

Answer \_\_\_\_\_ km





There are 5 plants growing in Tano's garden.

Tano measures the **height** of each plant at the end of **each month**.

The table shows his results.

	Apr	May	Jun	Jul	Aug	Sep	Oct
Plant 1	22cm	27cm	28cm	30cm	32cm	34cm	35cm
Plant 2	16cm	19cm	21cm	22cm	23cm	24cm	25cm
Plant 3	18cm	19cm	21cm	23cm	24cm	26cm	27cm
Plant 4	12cm	15cm	18cm	20cm	24cm	26cm	30cm
Plant 5	19cm	21cm	24cm	25cm	27cm	29cm	33cm

(a) What was the **mean height** of the 5 plants in **July**?

Answer \_\_\_\_\_ cm

(b) **Which** plant's height increased by **50%** between **April** and **October**?

Answer \_\_\_\_\_

5



Tamsin writes a **sequence** of numbers which go **up** in **steps of 2**.

2, 4, 6, 8, 10, 12 ...

The **5<sup>th</sup> term** in Tamsin's sequence is **10**, so it **ends in '0'**.

Complete these sentences about two more of the numbers in Tamsin's sequence that end in '0'.

The \_\_\_\_\_<sup>th</sup> **term** in the sequence is \_\_\_\_\_, so it **ends in '0'**.

The \_\_\_\_\_<sup>th</sup> **term** in the sequence is \_\_\_\_\_, so it **ends in '0'**.

Please do not write in this margin.



6



A biscuit has some information on the wrapper.



**How many grams of fat** are there in the biscuit?

Answer \_\_\_\_\_ grams







This table shows some information about the prices of some different sorts of tree.

It shows the **price per tree** for **different numbers** of **each sort** of tree.

The more trees you buy, the less you pay for each tree.

Sort of tree	Number of trees			
	1–4	5–49	50–249	250+
Alder	£1.98	£1.58	£1.40	£1.20
Chestnut	£2.30	£1.98	£1.80	£1.54
Fir	£2.78	£2.50	£2.32	£1.98
Hazel	£2.50	£2.18	£1.98	£1.68

- (a) Mrs Lee buys **55 trees** for **£108.90**.

**Which sort** of tree does she buy?

Answer \_\_\_\_\_

- (b) **5 Alder** trees at **£1.58 each** cost **less than 4 Alder** trees at **£1.98 each**.

Complete this statement with the **lowest number** for which it is **true**.

**50 Fir** trees at **£2.32 each** cost **less than** \_\_\_\_\_ **Fir** trees at **£2.50 each**.



This table shows some information about people in the United Kingdom in 2000.

Total population (millions)	58.7
Total labour force (millions)	29.0
Female population (% of total population)	51%
Female labour force (% of total labour force)	44%

Information from: World Bank Group Genderstats, <http://devdata.worldbank.org>

Use the information in the table to answer the following questions.

- (a) **What percentage** of the **total population** was in the **labour force**?

Answer \_\_\_\_\_ %

- (b) **How many men** were in the **labour force**?

Answer \_\_\_\_\_ million

- (c) A **member** of the **labour force** is **picked at random**.

**What** is the **probability** that the member is **female**?

Give your answer as a fraction.

Answer

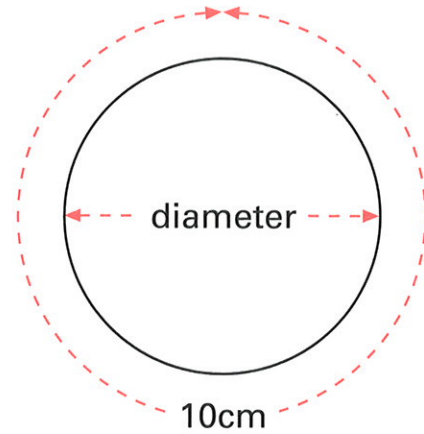
	/	
_____		



9



The circumference of a circle is 10cm.



What is the **value** of the **circumference divided by** the **diameter** of the circle?

Give your answer to 2 decimal places.

Answer \_\_\_\_\_



10



Sound travels at about **340 metres a second**.

**How long** does sound take to travel **12 kilometres**?

Give your answer to the nearest second.

Answer \_\_\_\_\_ seconds



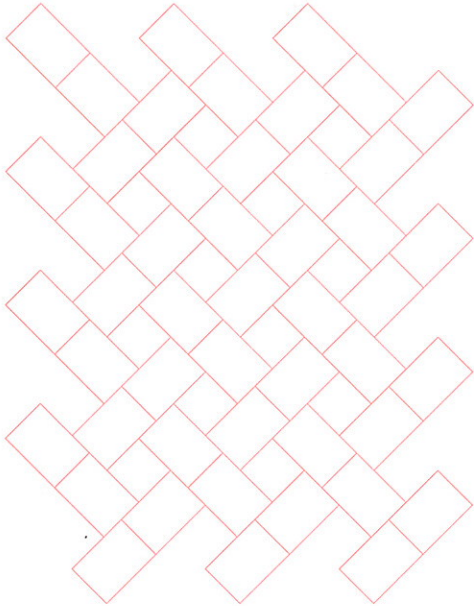
**End of section.**

**Do not turn over until you are told to do so.**



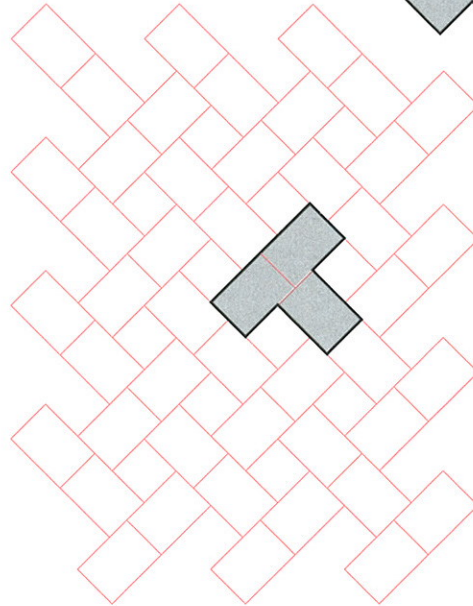
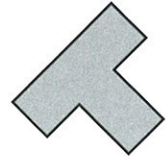


Look at this part of a wallpaper pattern.



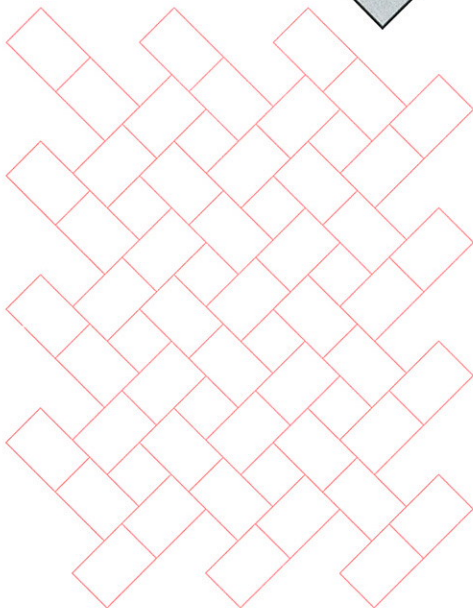
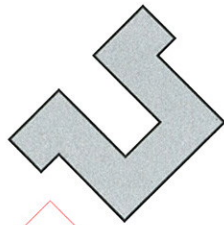
David found this **shape** in the pattern.

He **shaded** it in.



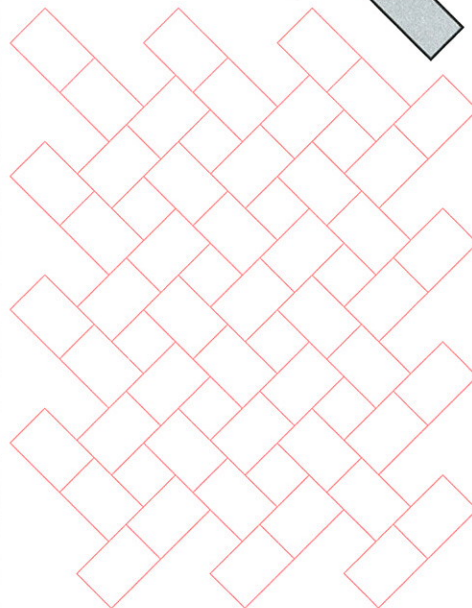
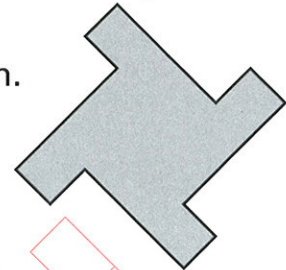
(a) **Find this shape** somewhere in the pattern.

**Shade it in.**



(b) **Find this shape** somewhere in the pattern.

**Shade it in.**





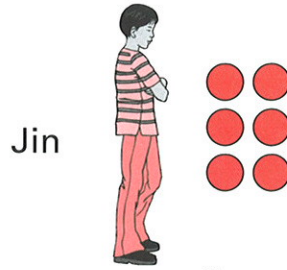
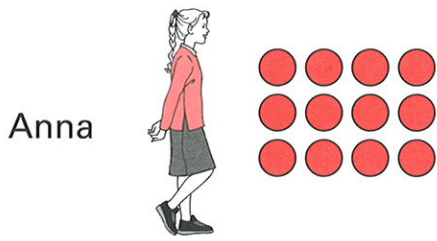
12

$$5000 - 3279 = \underline{\hspace{2cm}}$$

Please do not write in this margin.

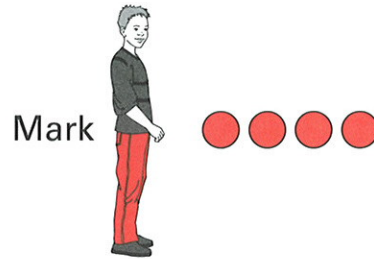
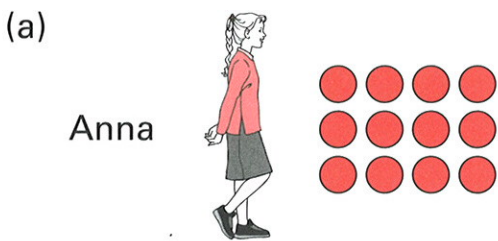


Fill in the gaps. The first is done for you.



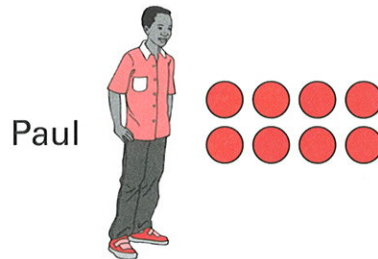
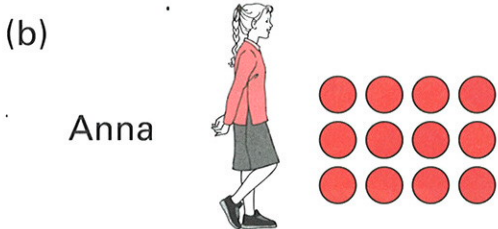
Anna has 2 times as many counters as Jin.

Jin has  $\frac{1}{2}$  as many counters as Anna.



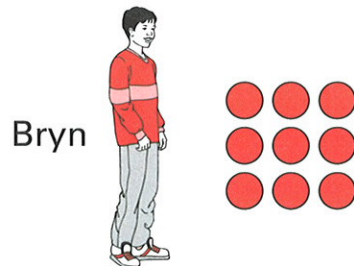
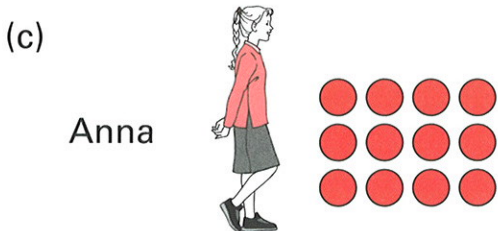
Anna has 3 times as many counters as Mark.

Mark has \_\_\_\_\_ as many counters as Anna.



Anna has  $1\frac{1}{2}$  times as many counters as Paul.

Paul has \_\_\_\_\_ as many counters as Anna.

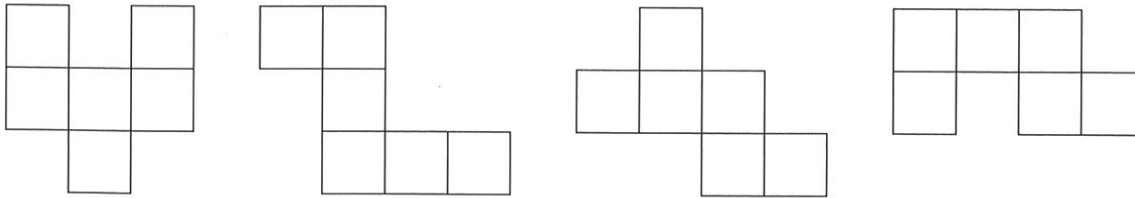


Anna has \_\_\_\_\_ times as many counters as Bryn.

Bryn has  $\frac{3}{4}$  as many counters as Anna.

14

Put a ring around the **net** that will **fold up** to make a **cube**.



Please do not write in this margin.

15

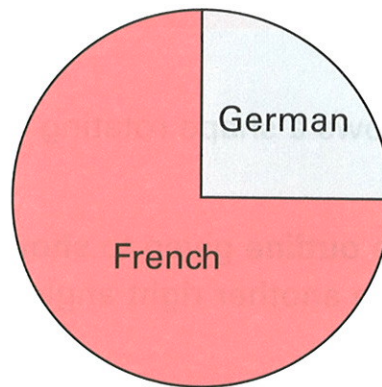
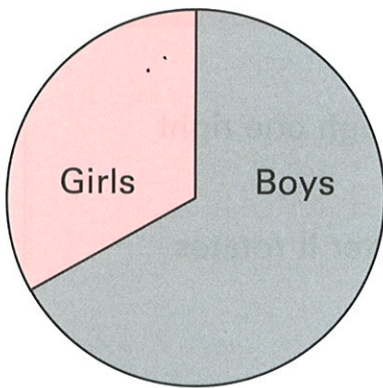
At New Hall School, **two thirds** of the Year 9 pupils are **boys**.

The rest are **girls**.

**Three quarters** of the Year 9 pupils study **French**.

The rest study **German**.

Year 9 Pupils



Tick the boxes to show whether each statement **must be true**, **could be true or false**, or **must be false**.

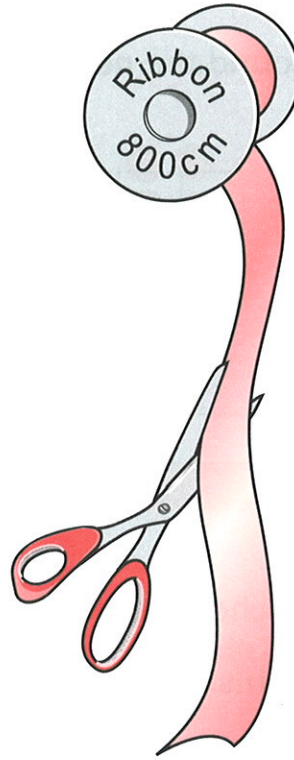
	must be true	could be true or false	must be false
All the girls study French.			
All the boys study German.			
At least some girls study French.			
At least some boys study German.			





16

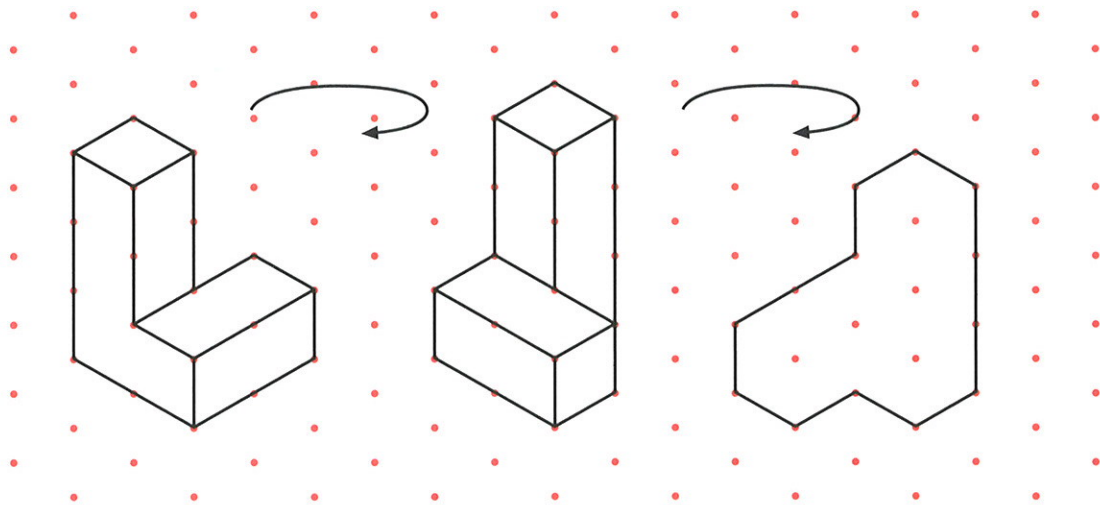
Mia has **800cm** of ribbon.  
She cuts it into strips **32cm** long.  
**How many** strips can she make?



Answer \_\_\_\_\_

17

This diagram shows a shape rotating clockwise through one right angle.  
**Draw lines in the outline** given to **show the shape** after it rotates clockwise through another right angle.



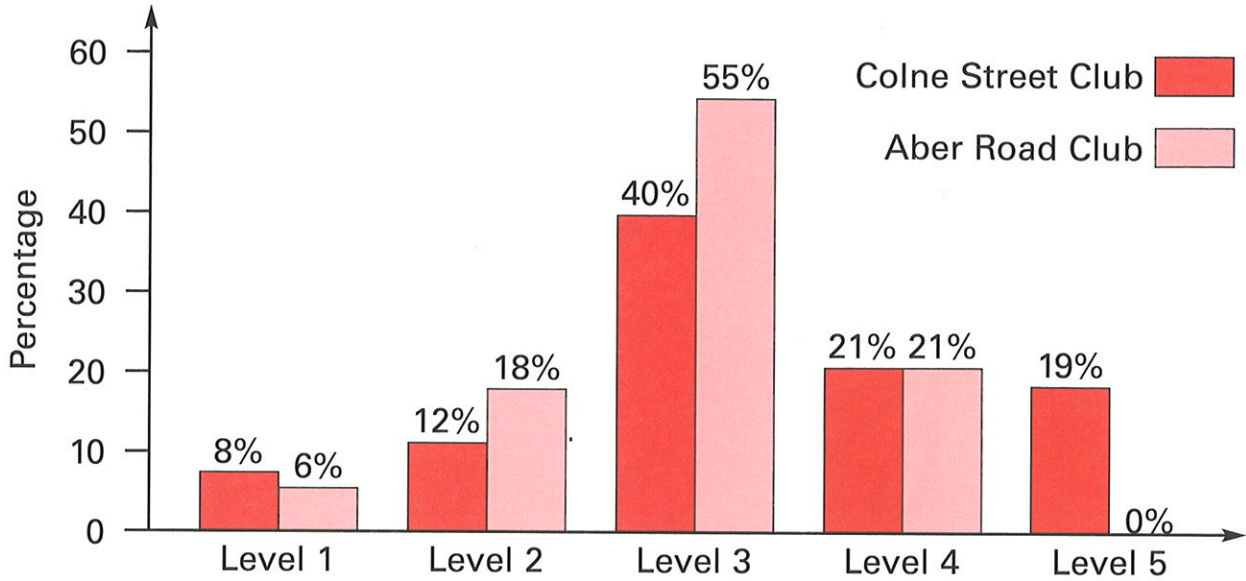
18

$$840 \div 24 = \underline{\hspace{2cm}}$$

Please do not write in this margin.



The bar chart shows the **percentage** of members of two youth clubs who reached **different levels** in a computer game.



Tick the boxes to show whether each statement **must be true**, **could be true or false**, or **must be false**.

	must be true	could be true or false	must be false
--	--------------	------------------------	---------------

The boys achieved higher levels than the girls in both clubs.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

A greater percentage of the members of Colne Street Club than Aber Road Club got only as far as level 1.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

A greater number of the members of Colne Street Club than Aber Road Club got only as far as level 1.

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------

<input type="checkbox"/>
<input type="checkbox"/>



Write an **expression** to **complete** each **equation**.

The first is done for you.

$$2t + 3 + \underline{t + 5} = 3t + 8$$

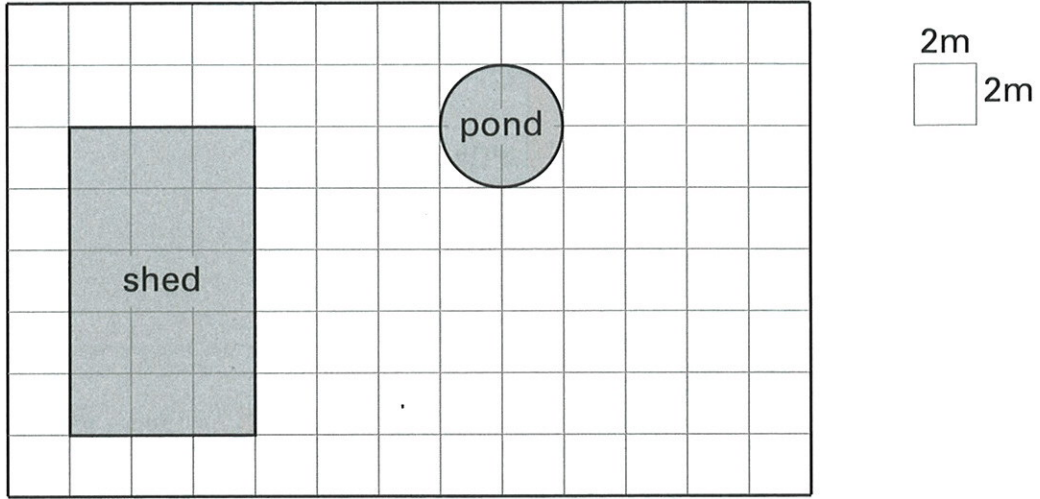
(a)  $t + 4 + \underline{\hspace{2cm}} = 3t + 6$

(b)  $2t - 7 + \underline{\hspace{2cm}} = 3t + 16$



This diagram shows a plan of Mrs Jackson's garden.

Each square represents an area 2 metres by 2 metres.



(a) What is the **area** of the **shed**?

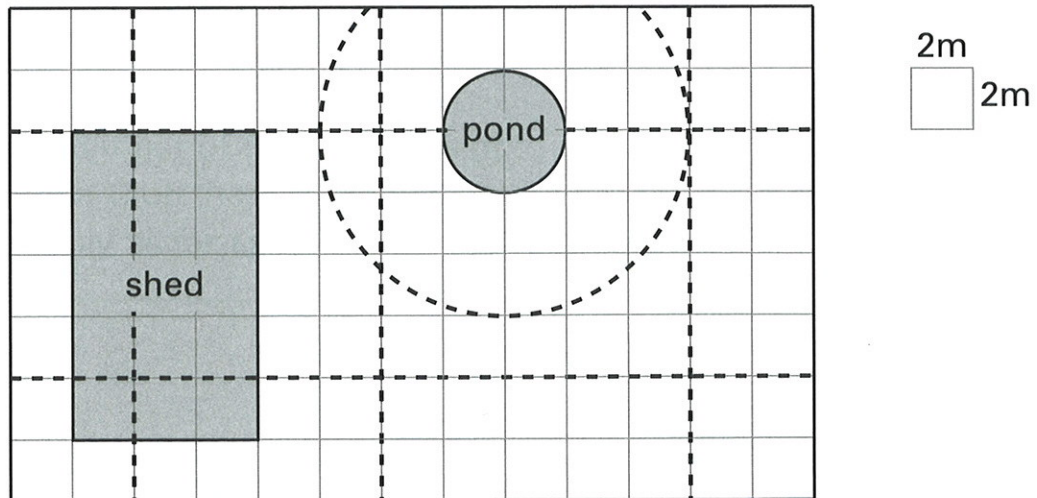
Answer \_\_\_\_\_ m<sup>2</sup>

(b) Mrs Jackson wants to **plant** a **tree** in her garden.

The tree must be at least **4 metres away from the edge** of the **pond**, the **side** of the **shed**, and the **edge** of the **garden**.

Mrs Jackson draws some lines on the plan, to help her to work out where she can plant the tree.

**Shade** the **part** of the plan that shows where Mrs Jackson can **plant** the **tree**.



22

Use the number fact in the box to help you to fill in the gaps.

$$325 \times 648 = 210600$$

(a)  $32.5 \times \underline{\hspace{2cm}} = 2106$

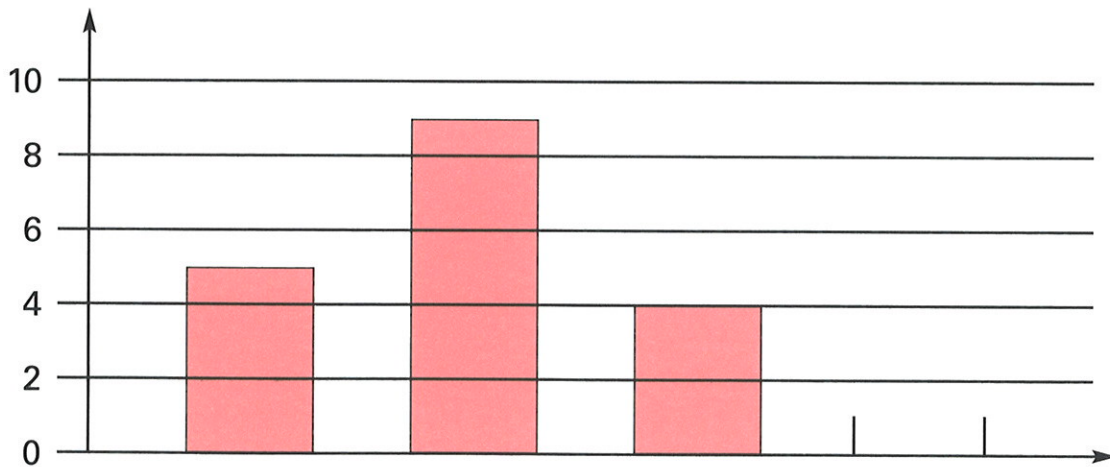
(b)  $\underline{\hspace{2cm}} \times 64.8 = 21.06$

Please do not write in this margin.



23

Draw one more **bar** on the bar chart to make **7** the **mean height** of all the bars.

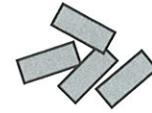
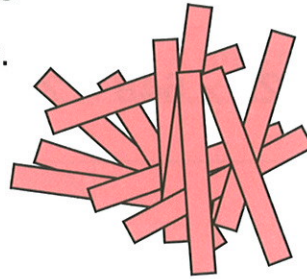
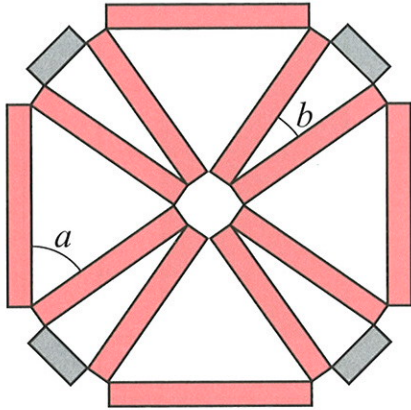




Gareth has some sticks in two lengths.

He makes a pattern with his sticks.

Work out the values of  $a$  and  $b$ .



Not drawn accurately.

$a =$  \_\_\_\_\_ °

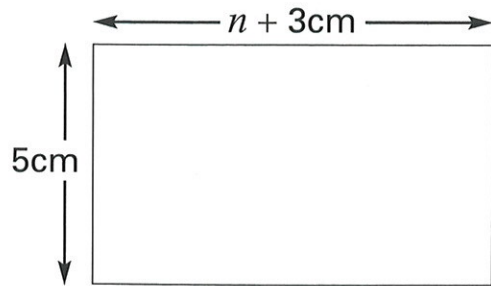
$b =$  \_\_\_\_\_ °

Please do not write in this margin.



Jenny draws a sketch of a rectangle.

The **area** of the rectangle is  $50\text{cm}^2$ .



Not drawn accurately.

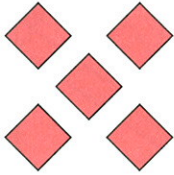
What is the **value** of  $n$ ?

$n =$  \_\_\_\_\_  $\text{cm}$

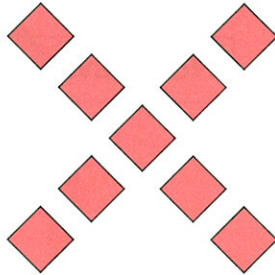


Jack makes a series of patterns with square tiles.

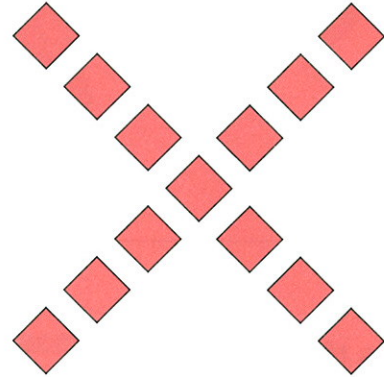
Each new pattern has four more tiles than the pattern before.



Pattern 1



Pattern 2



Pattern 3

(a) **How many tiles** does Jack need to make **Pattern 10**?

Answer \_\_\_\_\_ tiles

(b) Jack uses **61 tiles** to make a pattern in his series.

**What number pattern** does he make?

Pattern \_\_\_\_\_

(c) Write an **expression** for the **number of tiles** in **pattern  $n$**  in Jack's series.

Answer \_\_\_\_\_ tiles

Please do not write in this margin.



27

A machine makes **48** bottles **every hour**.

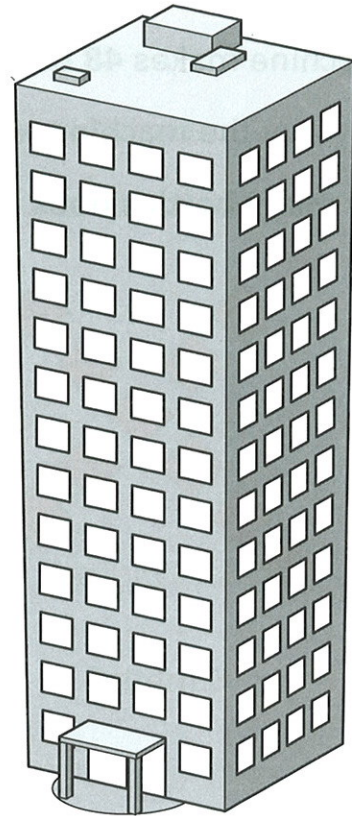
Every day the machine makes bottles from **09:00** until **16:30**.

**How many bottles** does the machine make in one day?

Answer \_\_\_\_\_

Please do  
not write  
in this  
margin.

Kate wants to **estimate how many times** the lift in this office building will **go up** when the office workers arrive in the morning.



She does these **calculations**.

$1000 \div 70 = 14.29$  Number of people who can go in the lift: 14

$11 \times 25 = 275$  Number of people who use the lift: 275

$275 \div 14 = 19.64$  Number of times the lift must go up: About 20

Fill in the blanks to state **what assumptions** Kate has made. You will need to look carefully at the picture.

The **maximum load** that can be carried in the lift is \_\_\_\_\_ kg.

The mean **mass** of an **office worker** is \_\_\_\_\_ kg.

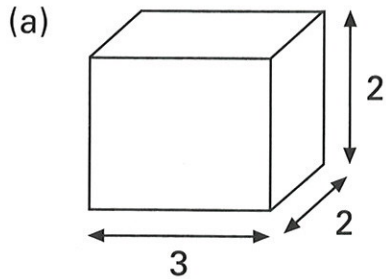
The office **workers** on the **first** \_\_\_\_\_ floors do not use the lift.

The **number** of **office workers** on **each floor** is \_\_\_\_\_ .

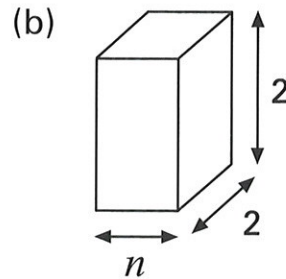


These diagrams show the dimensions of some cuboids in centimetres.

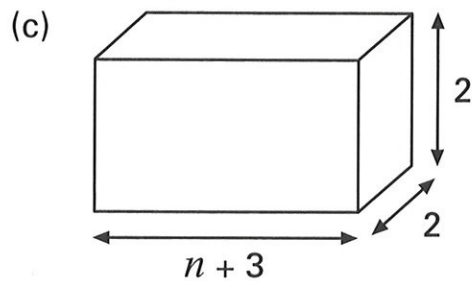
Write the **volume** of **each cuboid**.



Volume \_\_\_\_\_  $\text{cm}^3$



Volume \_\_\_\_\_  $\text{cm}^3$



Volume \_\_\_\_\_  $\text{cm}^3$

End of test.



## Teacher's Comments



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