Ma

KEY STAGE 3

TIER 3–5

Year 9 mathematics test

Paper 1

Calculator **not** allowed

First name _____

Last name _____

Class _____

Date _____

Please read this page, but do not open your booklet until your teacher tells you to start. Write your name, the name of your class and the date in the spaces above.

Remember:

- The test is 1 hour long.
- You **must not** use a calculator for any question in this test.
- You will need: pen, pencil, rubber, ruler, tracing paper and a mirror (optional).
- This test starts with easier questions.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

For marking use only	Total marks	

Instructions

Answers

This means write down your answer or show your working and write down your answer.

Calculators

You **must not** use a calculator to answer any question in this test.

1. The table shows the different types of light bulb sold in a shop.

Type of bulb	Power: 25W	40W	60W	100W	150W
Round	✓	✓	✓		
Normal		✓	✓	✓	✓
Long life		✓	✓		
Coloured	✓				
Reflector		✓	✓	✓	

Use this information to answer these questions.

(a) **Long life** bulbs are sold with two different powers.

What are these powers?

_____ W and _____ W

1 mark

(b) One type of bulb is **only** sold with a power of **25W**.

What type of bulb is this?

_____

1 mark

2. Here is a number grid.

41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90

Two squares are shaded.

(a) What is the **total** of the numbers in the two shaded squares?

_____

1 mark

(b) Shade **two different squares** that have the **same total** as the answer to part (a).

1 mark

(c) What is the **total** of the numbers in **all four** shaded squares?

_____

1 mark

3. A café sells small, medium and large drinks.

The table shows the number of drinks the café sold on one day.

	Coffee	Tea	Chocolate
Small	110	14	24
Medium	121	103	42
Large	90	64	58

(a) Altogether, how many **chocolate** drinks were sold?

2 marks

(b) A **small tea** costs **50p**.

Altogether, how much was spent on small teas?

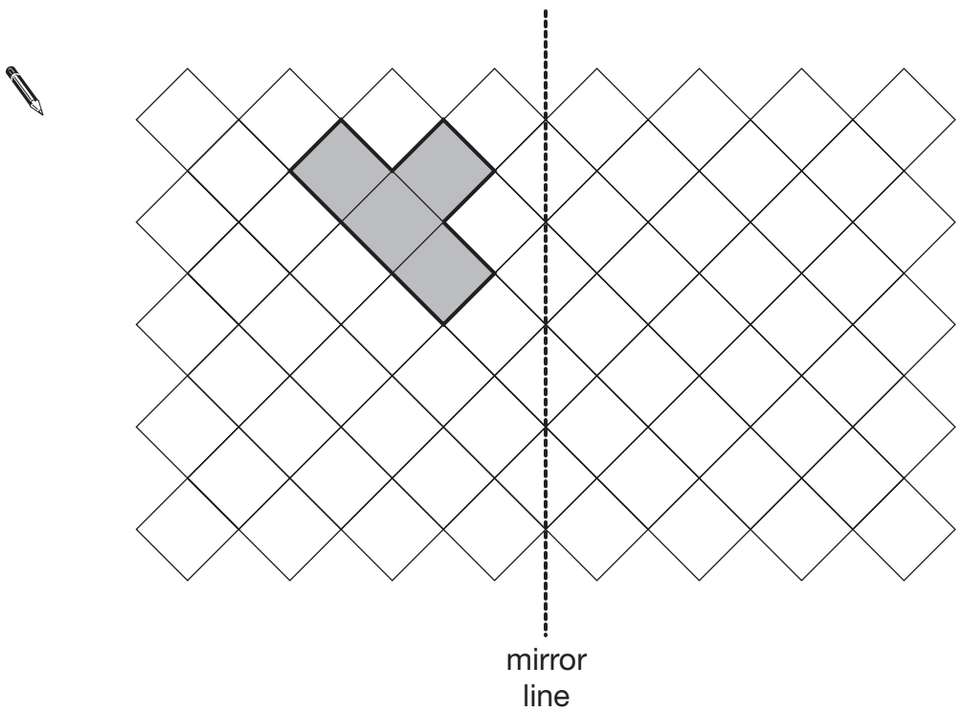
£

1 mark

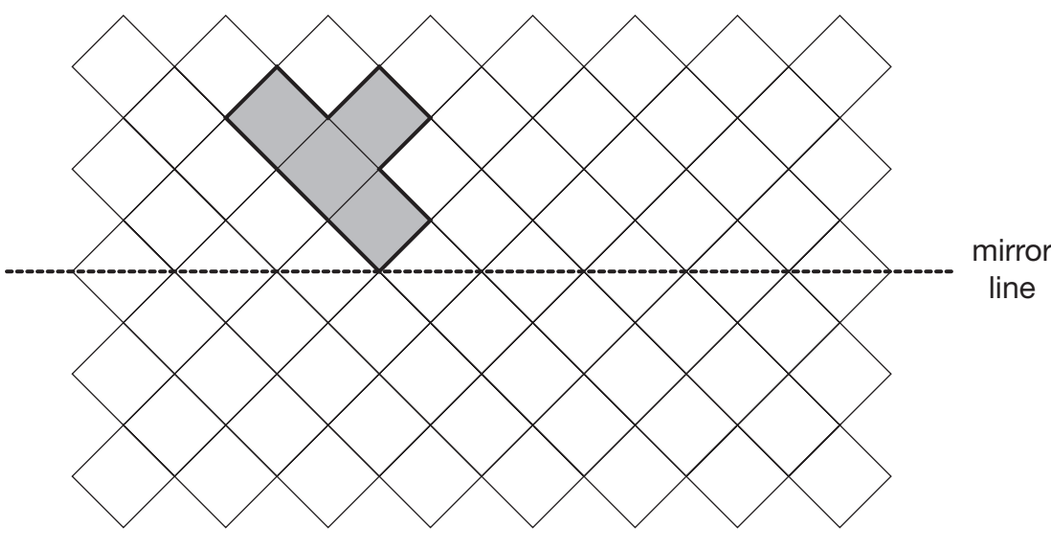
4. The shaded shapes in this question are drawn on square grids.

The mirror lines are shown.

Draw the **reflection** of each shape.



1 mark



1 mark

5. Look at the number sentences below.

Tick (✓) ones that are correct and cross (✗) ones that are incorrect.

	✓ or ✗
5 + 8 = 8 + 5	
5 − 8 = 8 − 5	
5 × 8 = 8 × 5	
5 ÷ 8 = 8 ÷ 5	

2 marks

6. Which **one** of these is most likely to hold about **5 litres** when it is full?

Tick (✓) your answer.

- ☐ A spoon
- ☐ A bottle of cough mixture
- ☐ A watering can
- ☐ A garden pond

1 mark

7. Write the missing numbers in the boxes.

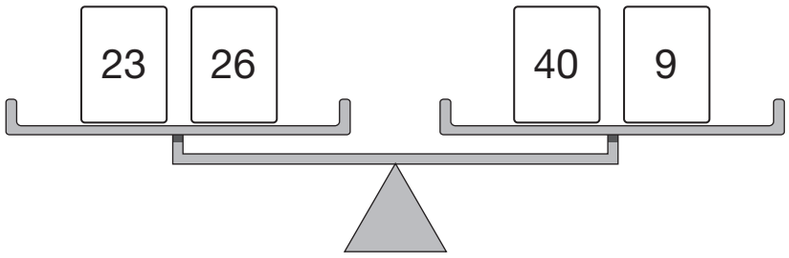
79 + 85 = ☐

1 mark

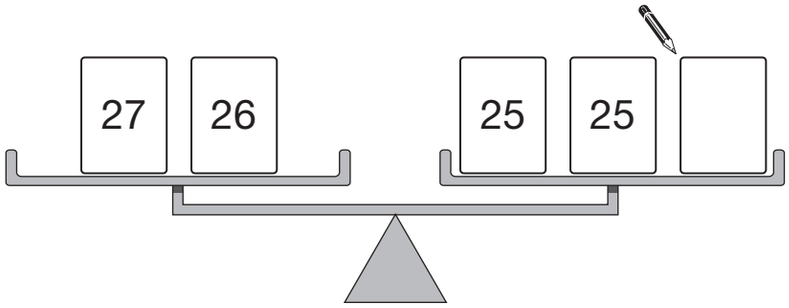
36 + ☐ = 90

1 mark

8. The numbers on these scales balance.



Write the missing number so that these scales balance.



1 mark

9. In this question you need to know:

Jo's birthday is **June 5th.**

(a) Sanjay's birthday is exactly **three weeks after** Jo's birthday.

On what date is Sanjay's birthday?

1 mark

(b) Tina's birthday is **5 months after** Jo's birthday.

In which month is Tina's birthday?

1 mark

10. Lily finished **2nd** out of **8 runners** in a race.

How many runners finished the race **after** Lily?

1 mark

Max was in a **different** race.

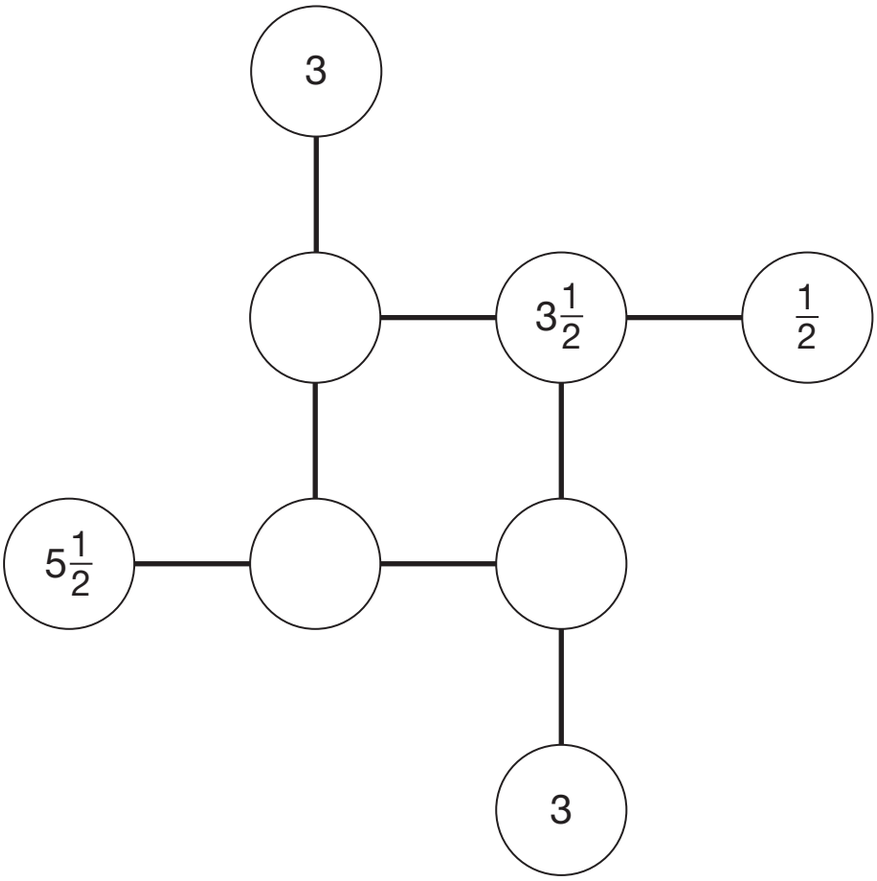
7 runners finished the race **before** Max.

3 runners finished the race **after** Max.

Altogether, how many runners finished the race?

1 mark

11. Complete this diagram so that the three numbers in each line **add to 8**

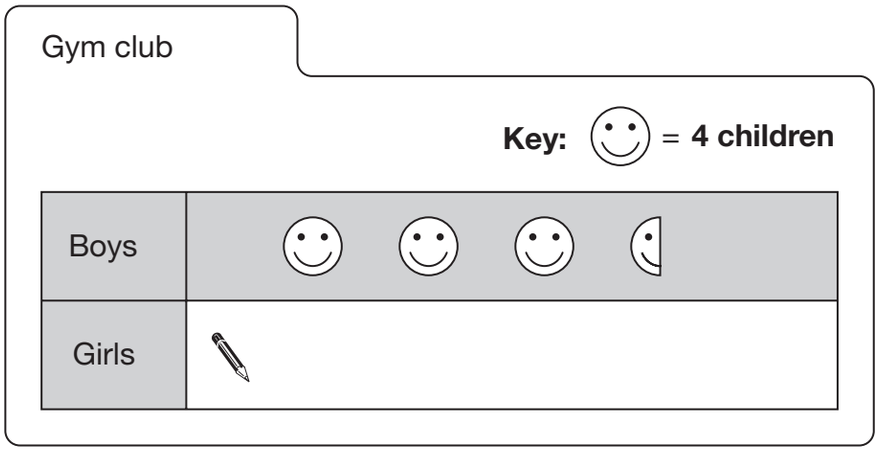


2 marks

12. A sports centre has two different clubs.

(a) **22 children** go to the gym club.

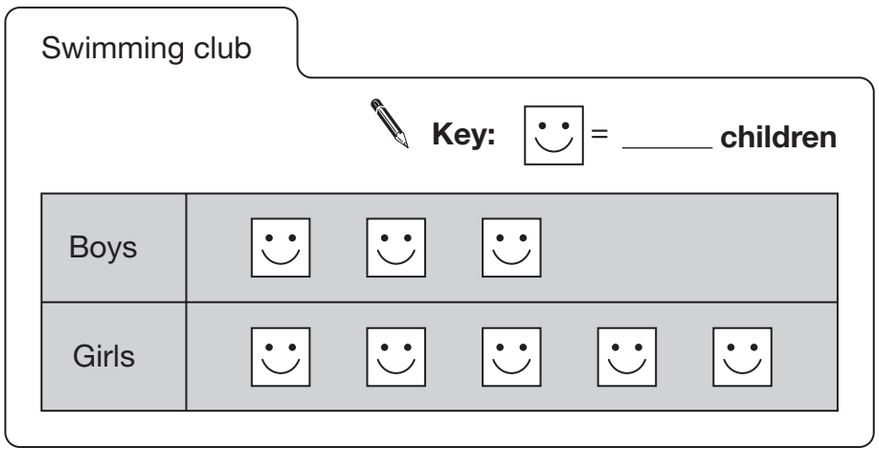
Complete the pictogram.



1 mark

(b) **10 more girls** than boys go to the swimming club.

Complete the key.



1 mark

13. In a school, lessons are **55 minutes** long.

(a) A maths lesson **starts** at 9:15am

At what time does the lesson **end**?

_____ : _____ am

1 mark

(b) A history lesson **ends** at 3:30pm

At what time does the lesson **start**?

_____ : _____ pm

1 mark

(c) Lunch break is $\mathbf{1\frac{1}{4}}$ **hours** long.

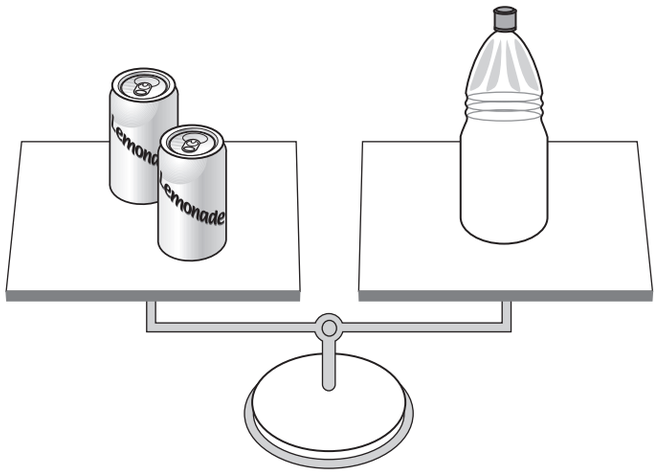
Lunch break **ends** at 1:30pm

At what time does it **start**?

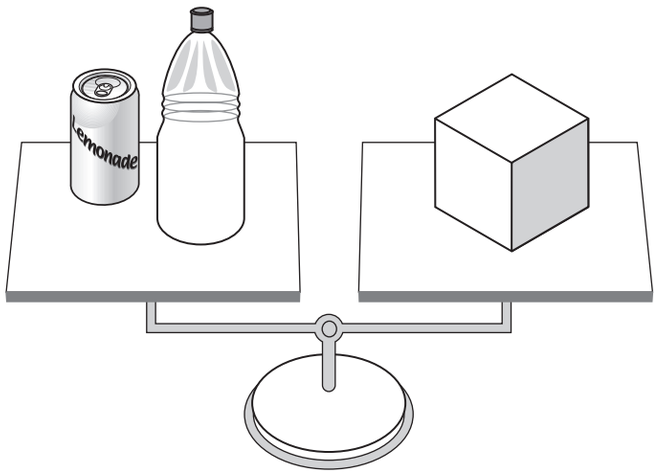
_____ : _____ pm

1 mark

14. 2 tins balance 1 bottle.



1 tin and 1 bottle balance 1 box.



(a) How many **bottles** do **6 tins** balance?

_____

1 mark

(b) How many **boxes** do **6 tins** balance?

_____

1 mark

15. (a) Look at this information about recycling:

> **25** large plastic bottles can be recycled to make **1** fleece jacket.

Write the missing number in this sentence.

200 large plastic bottles can be recycled to make _____ fleece jackets.

1 mark

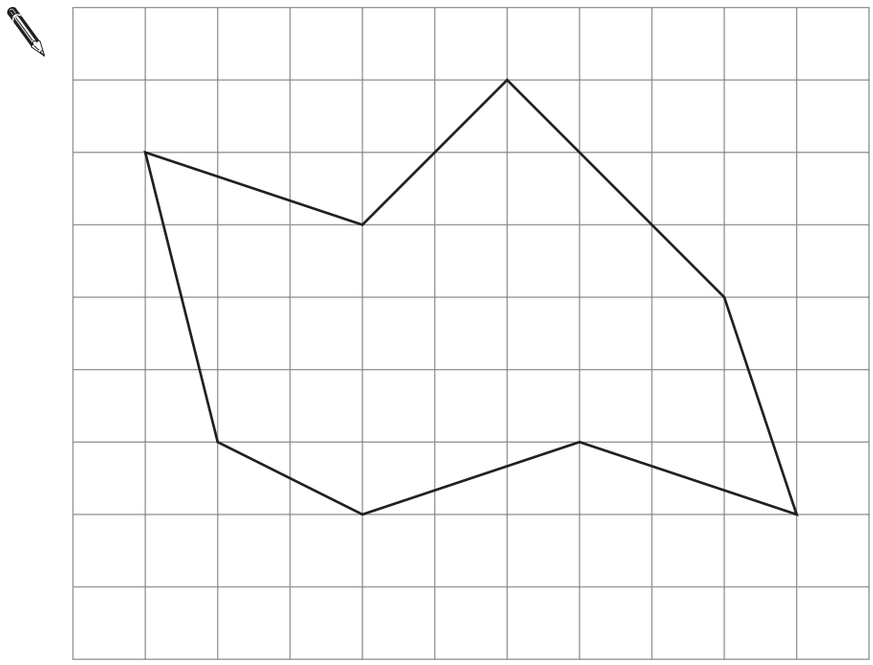
(b) In a survey, **9 out of 10** people said they would like to recycle more.

What percentage of people said they would like to recycle more?

_____ %

1 mark

16. Look at the shape drawn on a square grid.



(a) What is the name of the shape?

Put a ring round the correct name below.

hexagon quadrilateral octagon

pentagon parallelogram

1 mark

(b) One of the angles inside the shape is a **right angle**.

Mark the right angle on the shape above.

1 mark

17. A teacher said:

> Choose values for a and b
> Use the letters to make expressions for the numbers 1 to 8

(a) One group of pupils chose $a = 2$ and $b = 3$

Complete their table.

$a = 2 \quad b = 3$
$b - a = 1$
$a = 2$
$b = 3$
$2 \times a = 4$
$= 5$
$a \times b = 6$
$2 \times a + b = 7$
$= 8$

1 mark

1 mark

(b) Here is part of the table from a **different** group of pupils.

$2 \times a = 6$
$a + b = 7$

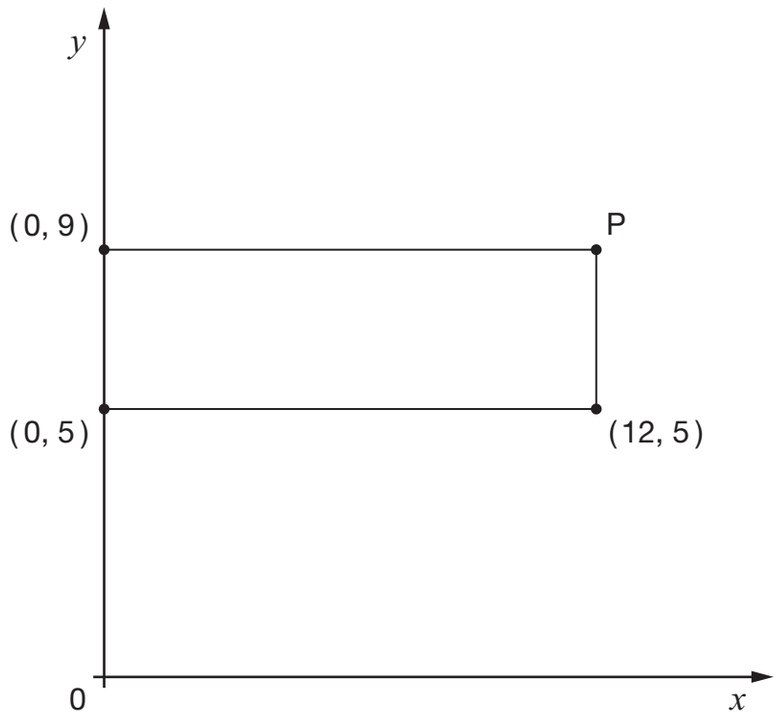
What values did they choose?

1 mark

$a =$ _____ $b =$ _____

1 mark

18. The graph shows a **rectangle.**



Not drawn accurately

Write the coordinates of point P

(_____ , _____)

2 marks

19. The table below helps to change centimetres into inches.

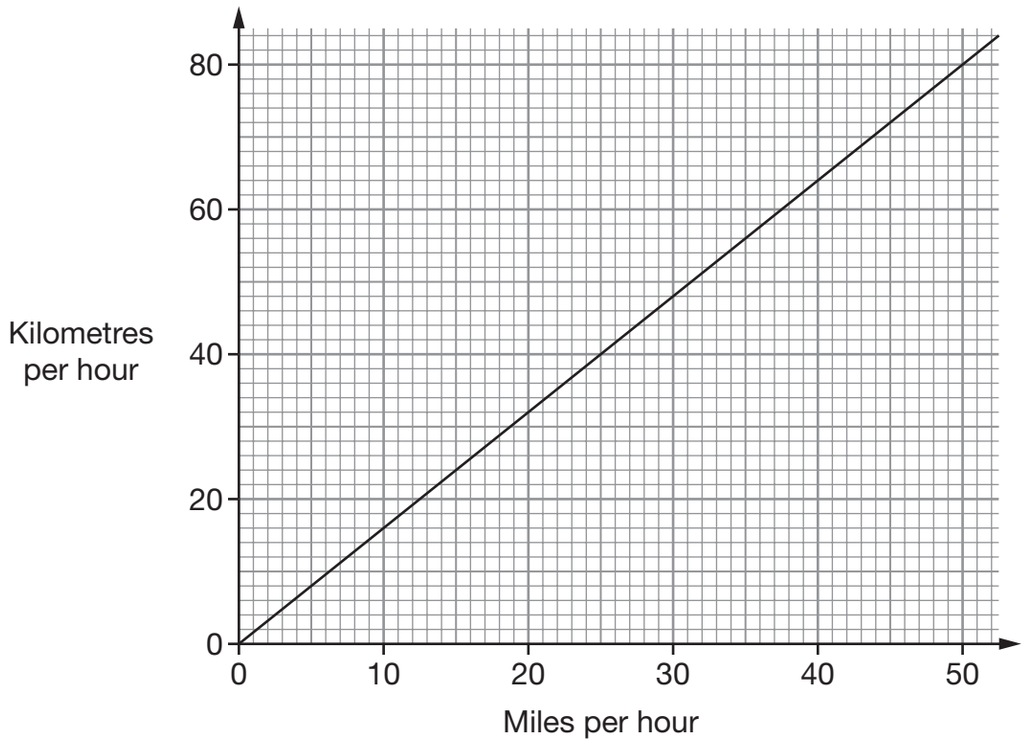
Number of centimetres	2	4	6	8	10	12
Number of inches (approximately)	0.8	1.6	2.4	3.1	3.9	4.7

About how many **inches** are there in **14 centimetres**?

_____ inches

1 mark

20. The graph shows the relationship between miles per hour and kilometres per hour.



Use the graph to write the missing numbers in the sentences below.

In England, the speed limit in towns is

30 miles per hour, which is _____ kilometres per hour.

1 mark

In a different country, the speed limit in towns is

70 kilometres per hour, which is _____ miles per hour.

1 mark

21. (a) Work out the answer.

2 + (16 ÷ 2) + 6 = _____

1 mark

(b) Put brackets in the calculation below to make it correct.

2 + 16 ÷ 2 + 6 = 4

1 mark

22. Here is part of a train timetable.

Paddington	07 45	13 35
Redruth	12 47	_____

(a) How long is the journey time from Paddington to Redruth on the 07 45 train?

_____ hours and _____ minutes

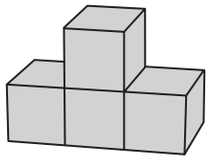
1 mark

(b) The 13 35 train from Paddington takes 4 hours 26 minutes to travel to Redruth.

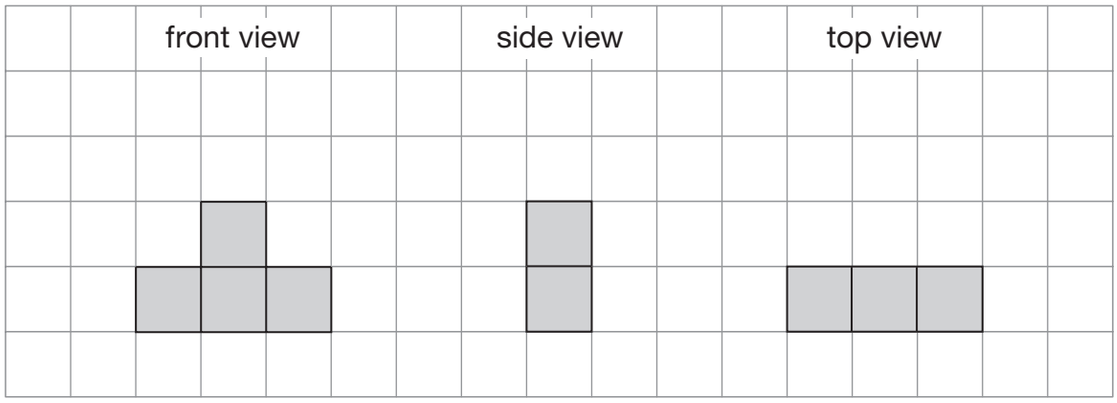
Write the missing time in the timetable.

1 mark

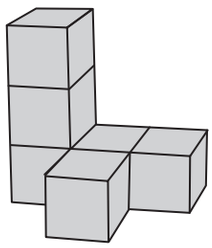
23. Alison builds a shape with some cubes.



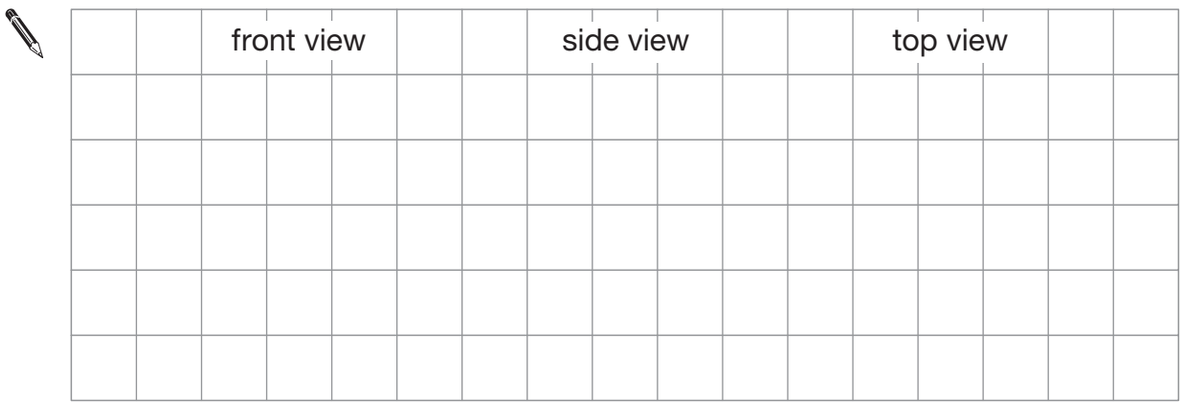
These are the front view, side view and top view of her shape.



Tariq builds a different shape with some cubes.



Draw the front view, side view and top view of his shape.



2 marks

24. (a) When $y = 1$, which expression below has the **largest value**?

Put a ring round it.

$3 + y$ $\quad$ $10 - y$ $\quad$ y^2

$3y$ $\quad$ $\frac{y}{2}$

1 mark

(b) When $y = 4$, which expression below has the **largest value**?

Put a ring round it.

$3 + y$ $\quad$ $10 - y$ $\quad$ y^2

$3y$ $\quad$ $\frac{y}{2}$

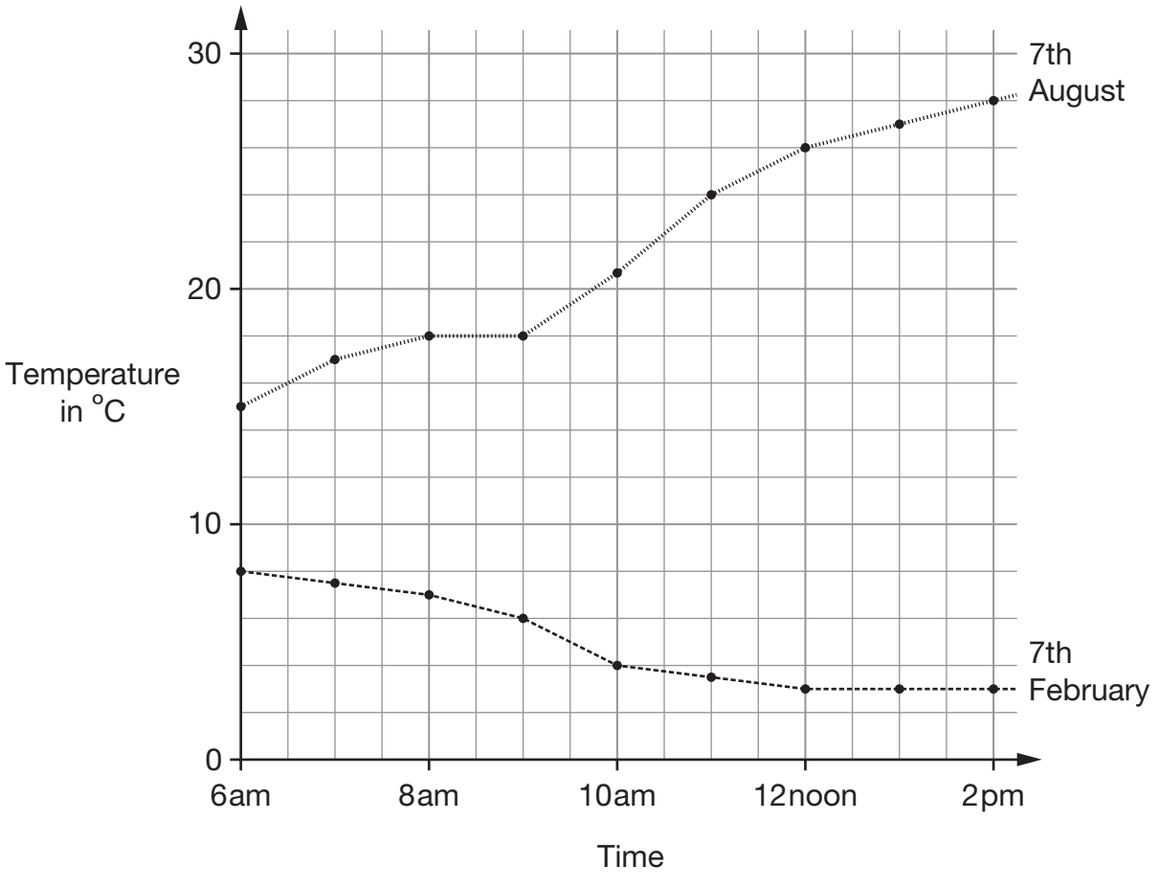
1 mark

(c) Write a number to make the sentence below true.

When $y =$ _____, the expression $3 + y$ has a **larger value** than the expression $3y$

1 mark

25. The graph shows the temperature in a town between 6am and 2pm on 7th February and 7th August one year.



(a) Estimate as accurately as you can the time when the temperature reached 20°C on 7th August.

_____ am

1 mark

(b) What was the difference between the temperatures at 12 noon on the two days?

_____ °C

1 mark

(c) On 7th February between 6am and 2pm the temperature dropped.

How many degrees did the temperature drop?

_____ °C

1 mark

26. In 2005, about 60.2 million people lived in the UK.

Look at the information about these people.

- 50.4 million lived in England.
- 5.1 million lived in Scotland.
- 3 million lived in Wales.
- The rest lived in Northern Ireland.

(a) In 2005, about how many people lived in Northern Ireland?

million

1 mark

(b) In 2005, about what percentage of people in the UK lived in Wales?

Tick (✓) the correct value.

☐ 1% ☐ 5% ☐ 20% ☐ 63%

1 mark

27. (a) What number is halfway between **–2** and **6**?

_____

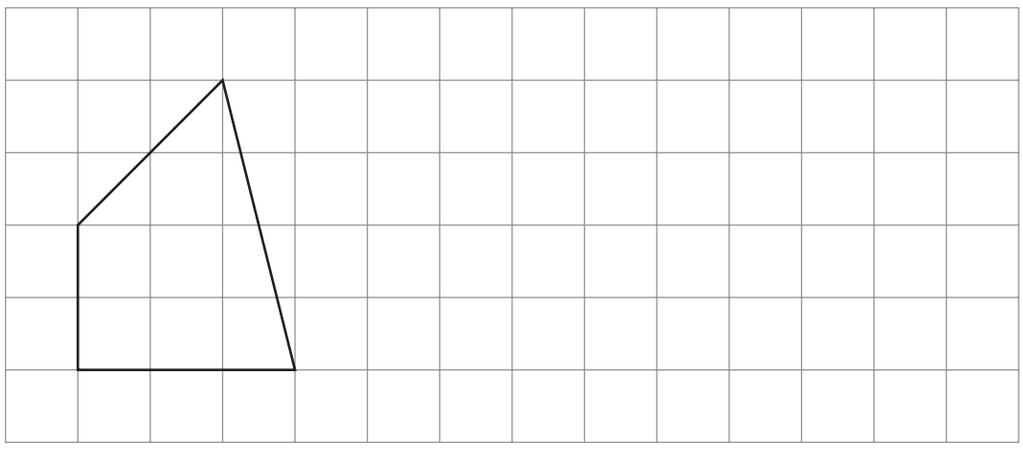
1 mark

(b) Complete the sentence.

–10 is halfway between _____ and **8**

1 mark

28. Here is a quadrilateral drawn on a square grid.



2 marks

On the same grid, draw a **different quadrilateral** which has the **same area**.

END OF TEST

QCDA/10/4334 (Pupil pack)
QCDA/10/4333 (Teacher pack)
062009