Mathematics test

Paper 1

Calculator **not** allowed

Please read this page, but do not open your booklet until your teacher tells you to start. Write your name and the name of your school in the spaces below. If you have been given a pupil number, write that also.

First name _____

Last name _____

School _____

Pupil number

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 and a ruler.
- 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.
- Check your work carefully.
- Ask your teacher if you are not sure what to do.

For marker's use only

Total marks	

Instructions

Answers

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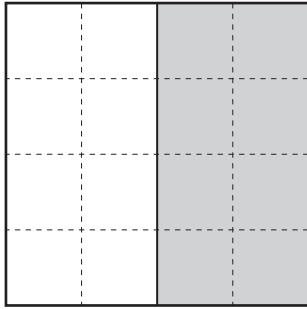
Calculators

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

1. **How much** of each square grid **is shaded**?
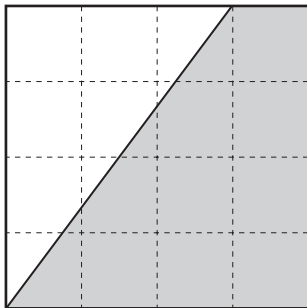
Tick (✓) the correct box.

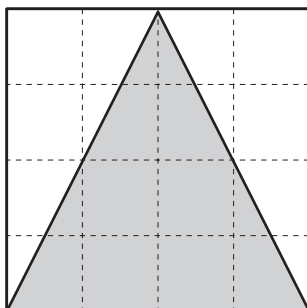The first one is done for you.

more than half ☐

half ☑

less than half ☐

more than half ☐

half ☐

less than half ☐
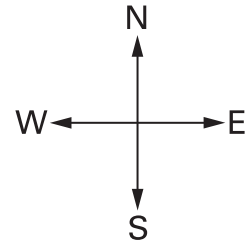
more than half ☐

half ☐

less than half ☐

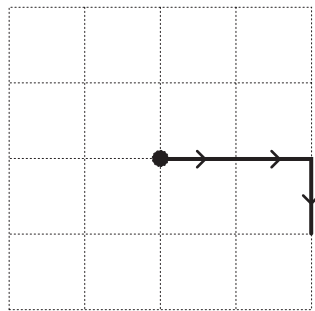*1 mark*

2. A robot moves on a square grid.

The grid is 4m by 4m.

The robot can move north, south, east or west.

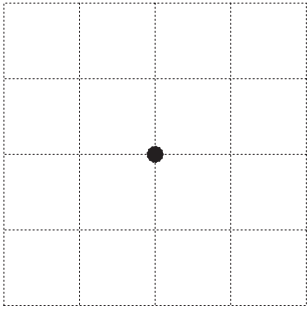Example: **Grid**   **Directions**

The robot started at ●

It moved 1m **east**, then

it moved 1m **east**, then

it moved 1m **south**.

(a) Draw lines on the grid below to show where the robot moves this time.
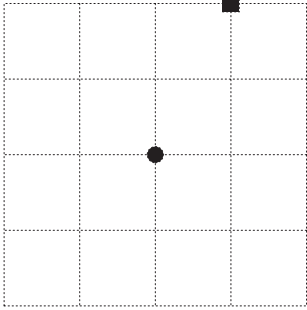
Start at ●

Move 1m **north**, then

move 1m **west**.

1 mark

(b) Fill in the missing directions to show how the robot could move from ● to ■

Start at ●

Move 1m .... , then
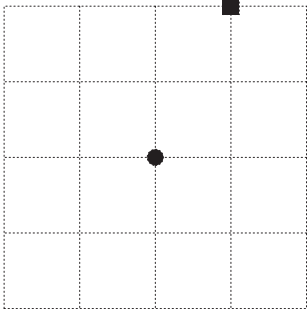
move 1m .... , then

move 1m ....

(c) Now show a **different** way the robot could move from ● to ■

Start at ●

Move 1m .... , then
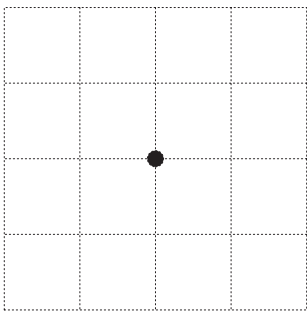
move 1m .... , then

move 1m ....

(d) Fill in the missing directions to show one way the robot could move from ● then back to ●

Start at ●

Move 1m .... , then

move 1m ....

3. (a) Add together **156** and **417**

. . . .

1 mark

(b) Subtract **192** from **638**

. . . .

1 mark

(c) Multiply **56** by **3**

. . . .

1 mark

(d) Divide **130** by **5**

. . . .

1 mark

4. The Olympic Games were held in September 2000.

The Paralympic Games were held in October 2000.

The table shows how many medals the UK won.

	Gold medal	Silver medal	Bronze medal
Olympics	11	10	7
Paralympics	41	43	47

Altogether, the UK won more medals at the Paralympics than at the Olympics.
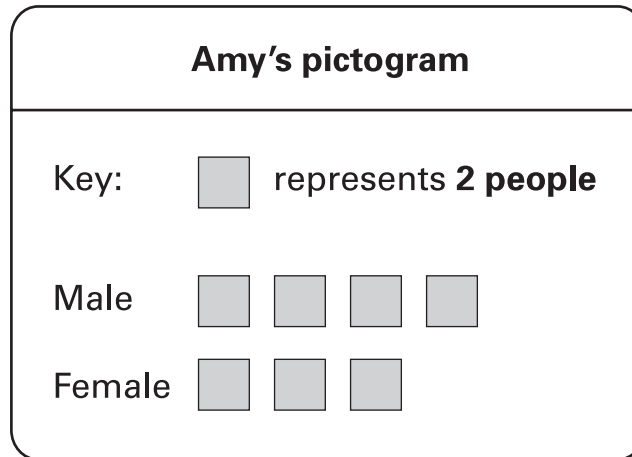
How many more?

Show your working.

. . . .

. . . .

. . . .

. . . .

3 marks

5. Amy and Ben do a survey together.

They each draw a pictogram.

Amy's pictogram

Key: ▢ represents **2 people**

Male ▢ ▢ ▢ ▢

Female ▢ ▢ ▢

Ben shows the **same** information but uses a **different key**.

Complete Ben's pictogram.

Ben's pictogram
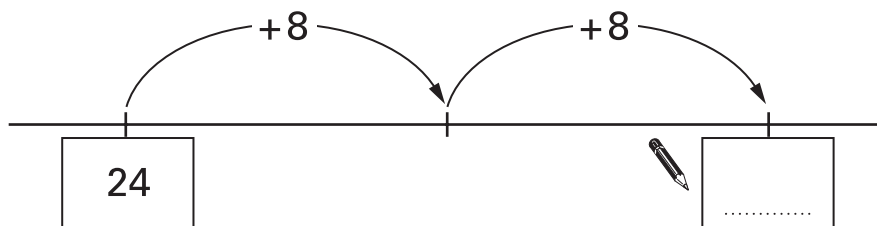
Key: ⬤ represents **4 people**

Male

Female
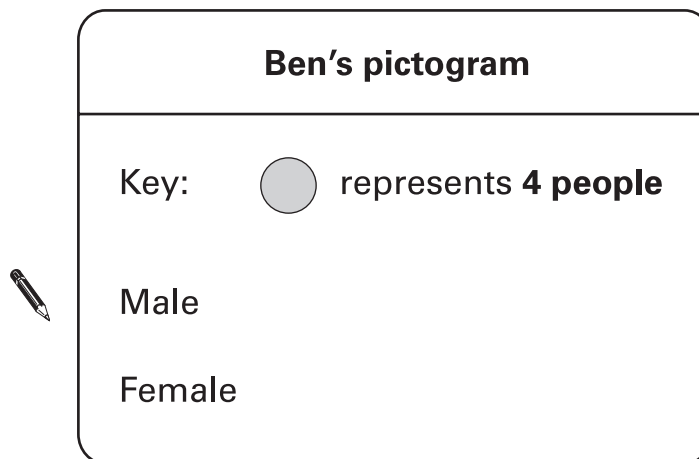
2 marks

6.   This question is about making **two steps** on a number line.

For example:
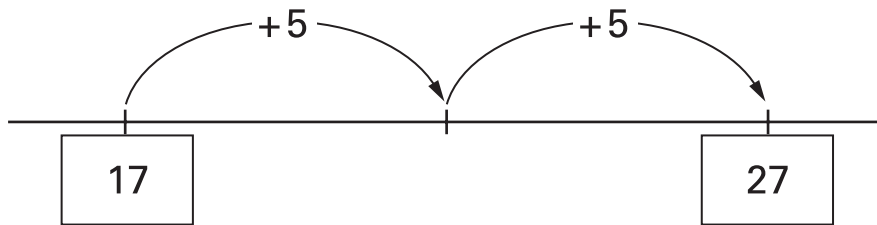
(a) Fill in the missing numbers on the number lines below.

1 mark
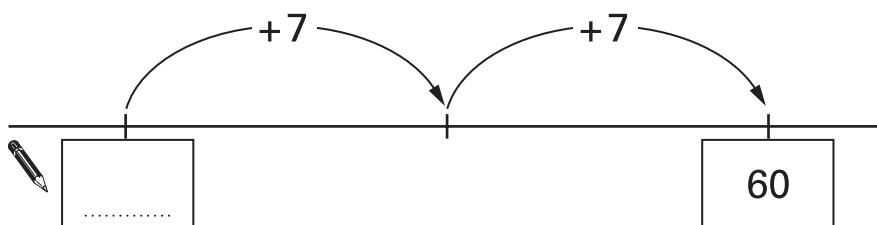
1 mark

(b) On the number line below, both steps are the **same size**.

How big is each step?

....

1 mark

7.   A pupil wrote these calculations.

Tick (✓) ones that are correct.

Cross (✘) ones that are wrong.

	✓ or ✘
4 + 2 = 2 + 4	
4 − 2 = 2 − 4	
4 × 2 = 2 × 4	
4 ÷ 2 = 2 ÷ 4	

2 marks

8. (a) What is the **area** of this rectangle?

.... cm^2

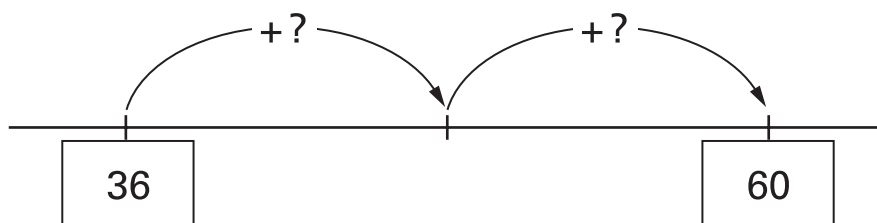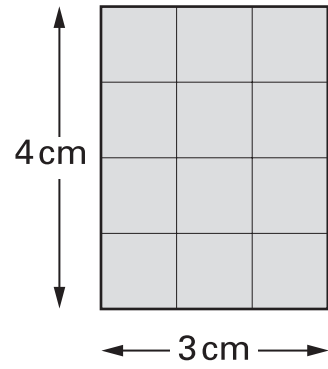4 cm

3 cm

1 mark

(b) I use the rectangle to make four triangles.
Each triangle is the same size.

What is the area of **one** of the triangles?

4 cm

3 cm

.... cm^2
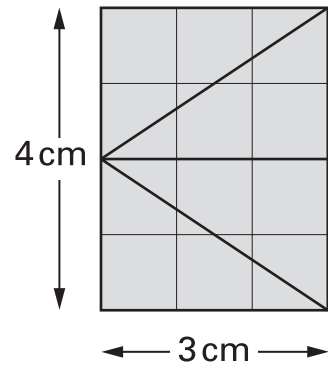
1 mark

(c) I use the four triangles to make a trapezium.

What is the area of the trapezium?

.... cm^2
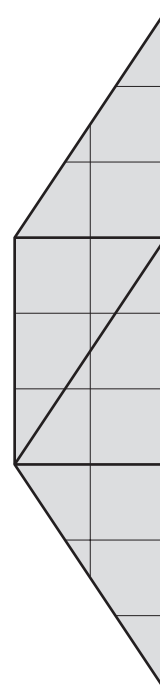
1 mark

9. Use **+**, **−**, **✗** or **÷** to make each calculation correct.

Examples:

2 ...**+**... 4 = 7 ...**−**... 1

5 ...**✗**... 3 = 3 ...**✗**... 5

5 .... 2 = 10 3

12 .... 3 = 3 3

2 .... 1 = 9 3

6 .... 6 = 7 7

10. Two pupils drew angles on square grids.
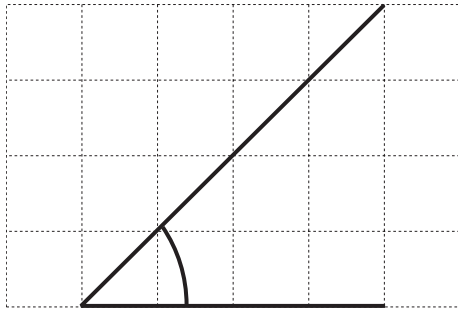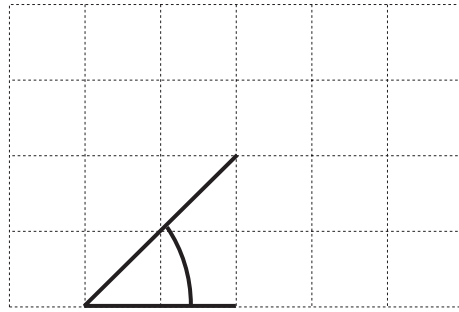
Angle **A**   Angle **B**

(a) Which word below describes angle **A**?

Tick (✓) the correct box.

acute ☐

obtuse ☐

right-angled ☐

reflex ☐

1 mark

(b) Is angle **A bigger** than angle **B**?

Tick (✓) Yes or No.

Yes ☐   No ☐

Explain your answer.

1 mark

11. There are **four** different ways to put 6 pupils into equal size groups.

6 pupils
- 1 group of 6
- 2 groups of 3
- 3 groups of 2
- 6 groups of 1
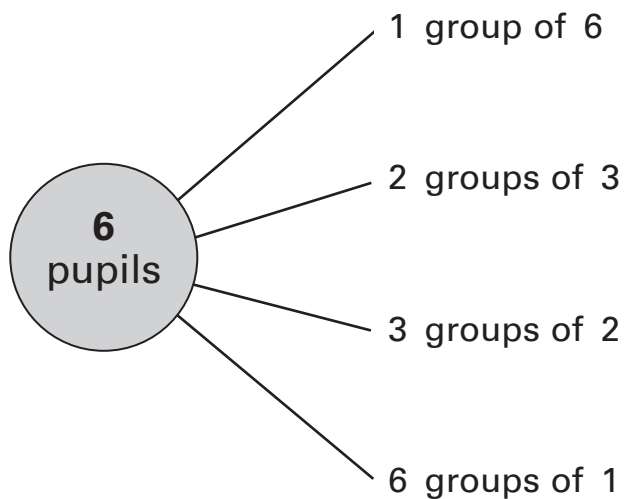
(a) Show the **five** different ways to put 16 pupils into equal size groups.

16 pupils
- .... group of ....
- .... groups of ....
- .... groups of ....
- .... groups of ....
- .... groups of ....
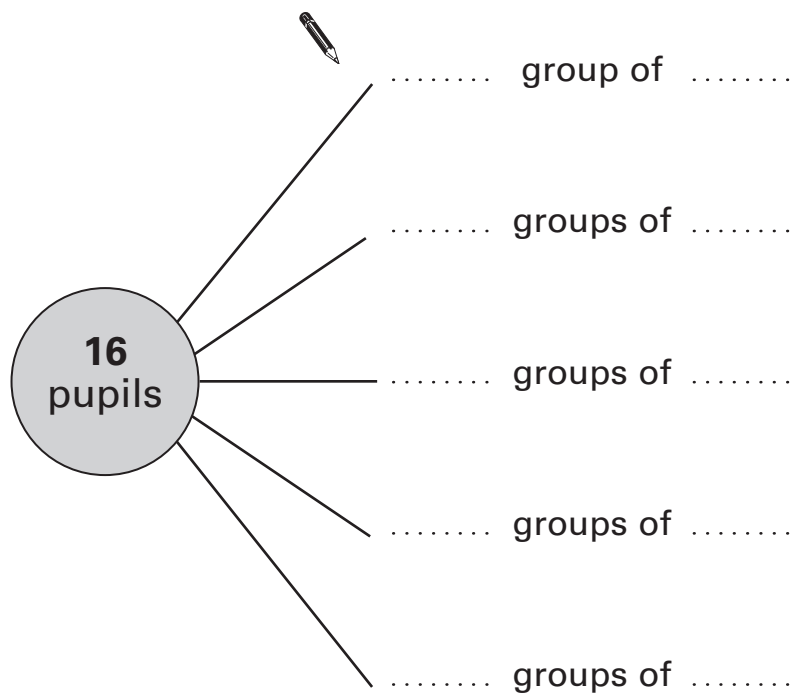
2 marks

(b) Circle the numbers below that are **factors of twelve**.

1   2   3   4   5   6

7   8   9   10   11   12

2 marks

12. (a) I can think of three different rules to change **6** to **18**

6 ⟶ 18

Complete these sentences to show what these rules could be.

first rule: **add** ....

1 mark

second rule: **multiply by** ....

1 mark

third rule: **multiply by 2 then** ....

1 mark

(b) Now I think of a new rule.

The new rule changes **10 to 5** **and** it changes **8 to 4**

10 ⟶ 5   8 ⟶ 4

Write what the new rule could be.

....

1 mark

13.

P **Car Park**
Car Park Charges
15p for **8 minutes**

How much does it cost to park for **40 minutes**?

Show your working.

p

2 marks

14. (a) Peter's height is **0.9 m**.

Lucy is **0.3 m taller** than Peter.

What is Lucy's height?

	m

(b) Lee's height is **1.45 m**.

Misha is **0.3 m shorter** than Lee.

What is Misha's height?

	m

1 mark

(c) Zita's height is **1.7 m**.

What is Zita's height in **centimetres**?

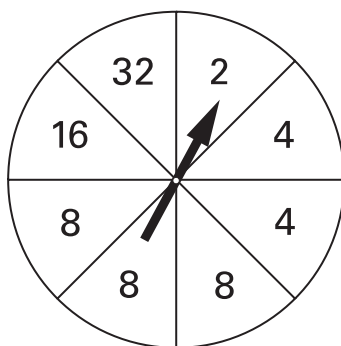|	cm

1 mark

15. (a) A spinner has **eight** equal sections.

What is the probability of scoring **4** on the spinner?

What is the probability of scoring an **even** number on the spinner?
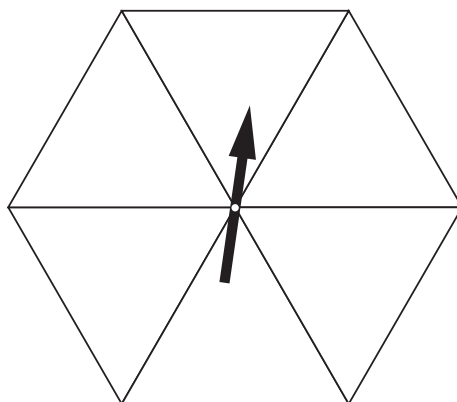
(b) A different spinner has six equal sections and **six numbers**.

On this spinner, the probability of scoring an **even** number is $\frac{2}{3}$

The probability of scoring **4** is $\frac{1}{3}$

Write what numbers could be on this spinner.

16. Look at this table.

	Age (in years)
Ann	a
Ben	b
Cindy	c

Write in words the meaning of each equation below.

The first one is done for you.

$b = 30$	Ben is 30 years old
$a + b = 69$	
$b = 2c$	
$\dfrac{a + b + c}{3} = 28$	

1 mark

1 mark

1 mark

17. **Four** squares join
together to make a bigger square.
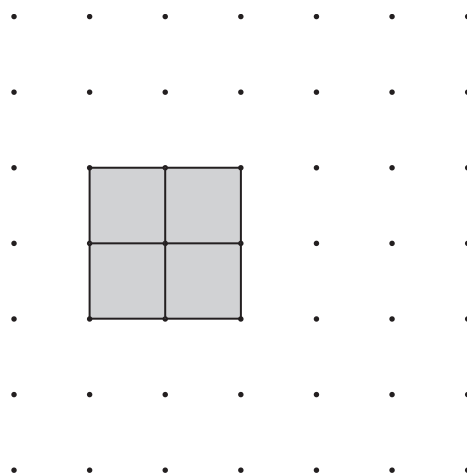
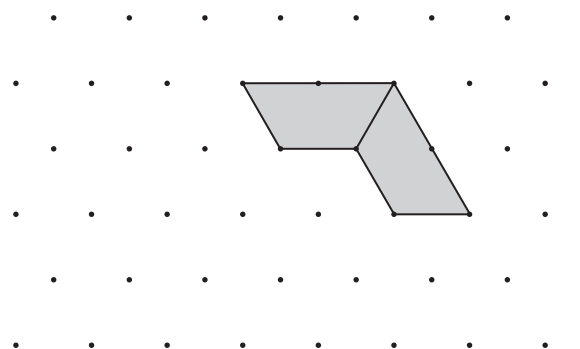(a) **Four** congruent triangles join
together to make a bigger triangle.

Draw **two more** triangles to complete
the drawing of the bigger triangle.
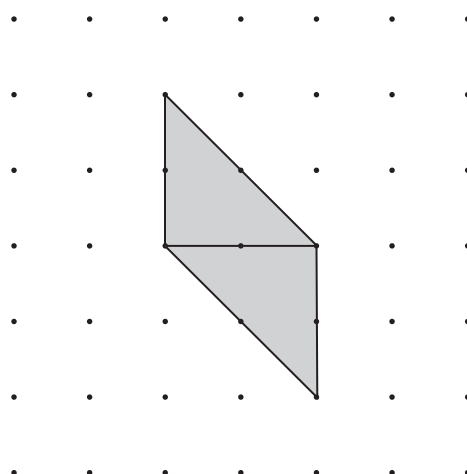
1 mark

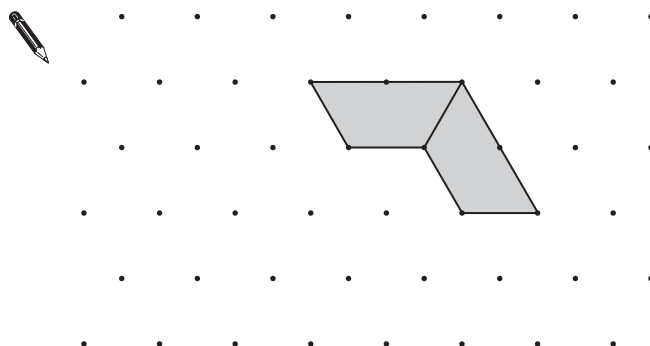(b) Four congruent trapeziums join to make a bigger trapezium.

Draw **two more** trapeziums to complete the drawing of the
bigger trapezium.

1 mark
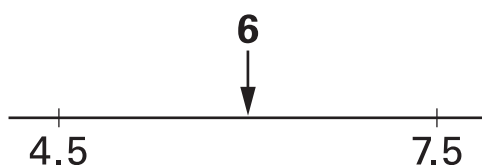
(c) Four congruent trapeziums join to make a **parallelogram**.

Draw **two more** trapeziums to complete the drawing of the parallelogram.

1 mark

18. The number 6 is halfway between 4.5 and 7.5

6

4.5   7.5

Fill in the missing numbers below.

The number 6 is halfway between   **2.8**   and ……….

1 mark

The number 6 is halfway between   **–12**   and ……….

1 mark

19.   Hakan asked 30 pupils which subject they liked best.

Subject	Number of boys	Number of girls
Maths	4	7
English	2	4
Science	3	3
History	0	1
French	1	5
	total 10	**total 20**

(a) Which subject did **20%** of **boys** choose?

. . . .

(b) Which subject did **35%** of **girls** choose?

. . . .

(c) Hakan said:

   'In my survey, **Science** was equally popular
   with boys and girls'.

Explain why Hakan was **wrong**.

(d) Which subject **was** equally popular with boys and girls?

. . . .

20. (a) When $x = 5$, work out the values of the expressions below.

$2x + 13 = \ldots\ldots\ldots\ldots$

$5x - 5 = \ldots\ldots\ldots\ldots$

$3 + 6x = \ldots\ldots\ldots\ldots$

2 marks

(b) When $2y + 11 = 17$, work out the value of y

Show your working.

$y = \ldots\ldots\ldots\ldots$

2 marks

END OF TEST