2023 national curriculum tests

Key stage 2

Mathematics

Paper 3: reasoning

MODIFIED LARGE PRINT

First name _____

Middle name _____

Last name _____

Date of birth **Day** _____ **Month** _____ **Year** _____

School name _____

DfE number _____

Note to markers

This paper should be marked using the standard mark schemes for KS2 Mathematics: Paper 3. There is additional guidance on marking some questions in this paper in the Key stage 2 Mathematics amendments to mark schemes – MLP document.

STA/23/8719/MLe_24pt

Instructions

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

Questions and answers

You have 40 minutes to complete this test, plus your additional time allowance.

Follow the instructions for each question.

Work as quickly and as carefully as you can.

If you need to do working out, you can use any space on the page.

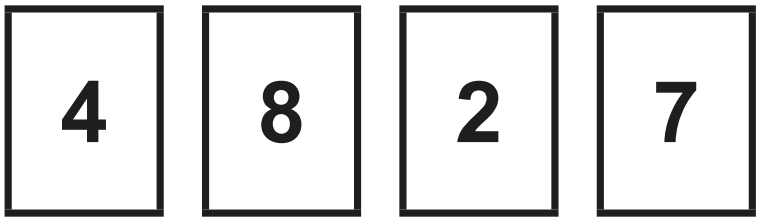
Some questions say: 'Show your method.'

For these questions, you may get a mark for showing your method.

If you cannot do a question, go on to the next one. You can come back to it later, if you have time.

If you finish before the end, go back and check your work.

1. **Look at the four digit cards below.**

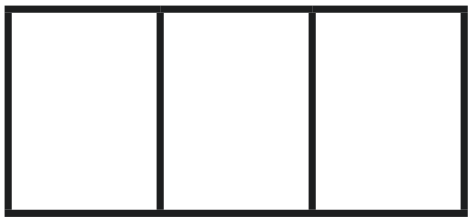


Chen uses three of the cards to make a three–digit number.

Each card can be used only once.

She puts the 4 in the tens place.

Write the lowest three–digit number that Chen could make in the boxes below.



2. Look at the five numbers below.

8 306

80 036

80 306

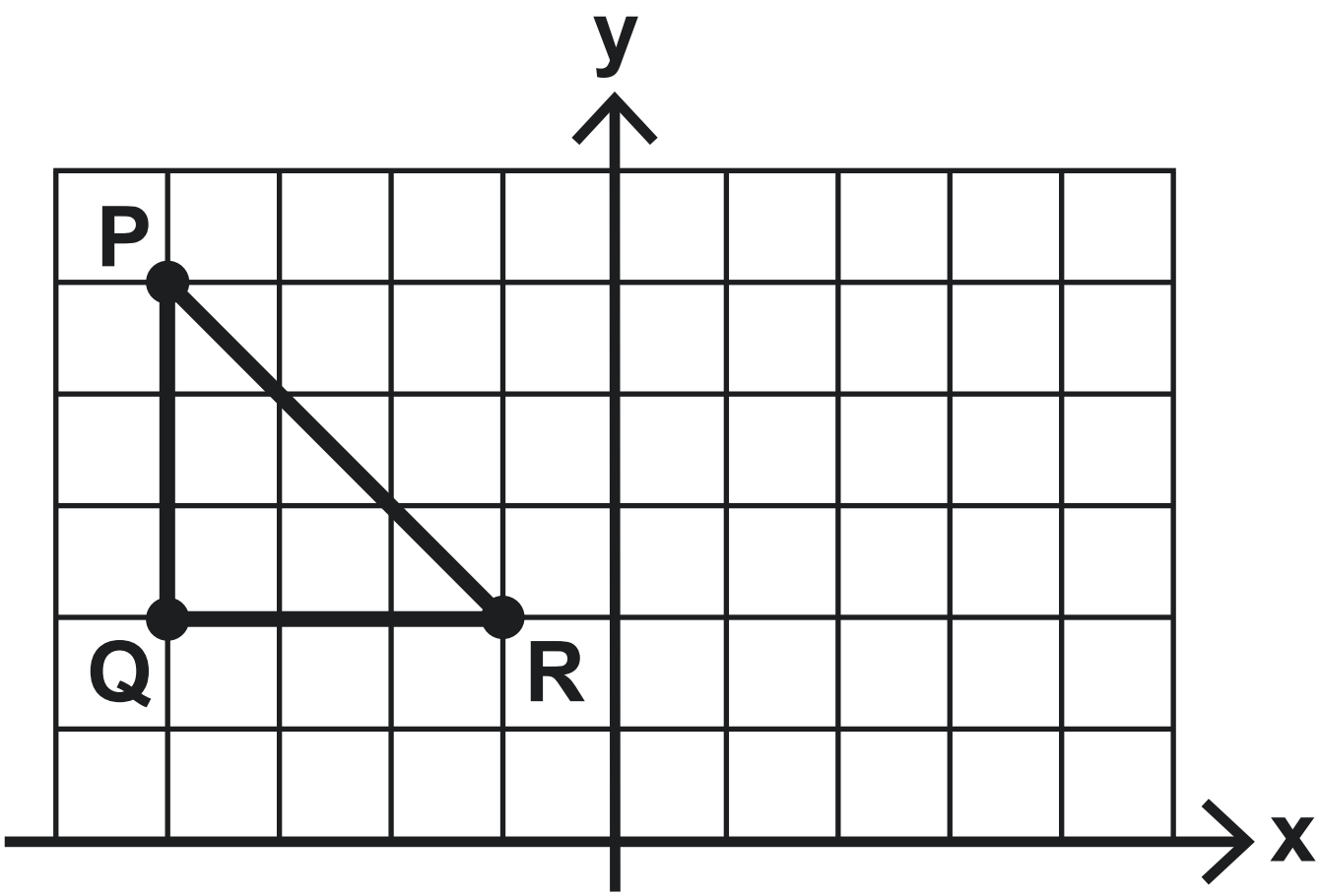
800 306

80 300 006

Tick or mark the number eighty thousand, three hundred and six.

3. **You have a cut–out shape for this question.**

Amina draws triangle PQR on a grid as shown below.



She then reflects the triangle in the y–axis.

Draw the reflected triangle on the grid.

Use a ruler.

4. **Look at the number sequence below.**

1 780 1 880 1 980 _____ _____

Write the next two numbers in this sequence.

5. **Look at the five decimals below.**

13·2 14·7 15·9 16·3 17·6

Tick or mark the two decimals that round to the same whole number.

6. **Write the missing number to make the calculation below correct.**

$$1\,300\,450 = 1\,000\,000 + \square + 400 + 50$$

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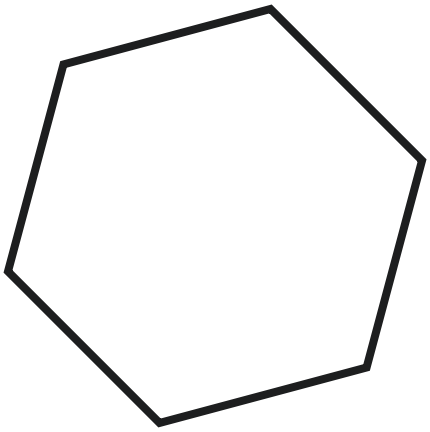
7. **Look at the number square below.**

Part of the number square is missing.

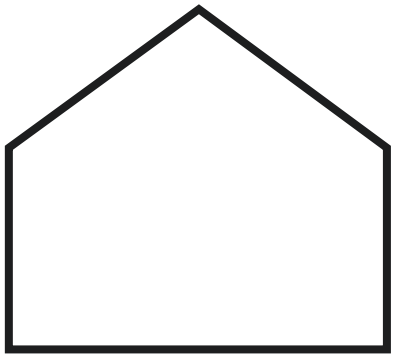
$\frac{1}{2}$	1	$1\frac{1}{2}$	2	$2\frac{1}{2}$
3	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5
	6	$6\frac{1}{2}$	7	$7\frac{1}{2}$
		9	$9\frac{1}{2}$	10
			12	$12\frac{1}{2}$

What number should be in the bottom–left corner of the number square?

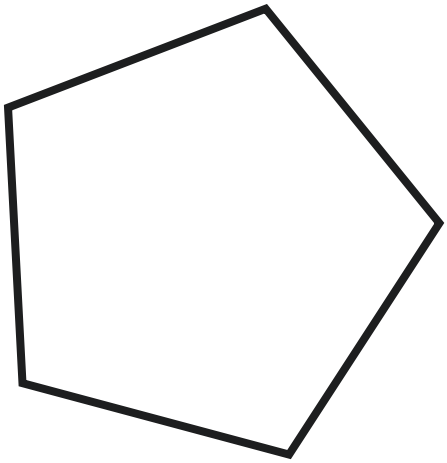
8. Match each shape to the correct name.



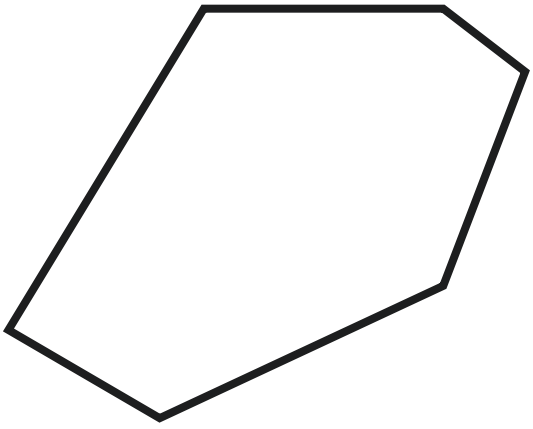
irregular pentagon



regular hexagon



regular pentagon



irregular hexagon

9. Jack says he multiplied a whole number by 3 and his answer was 32

Explain why Jack is **not** correct.

10. Write the missing square number to make the addition below correct.

$$8^2 + \_\_\_\_\_^2 = 73$$

11. At the start of April, a shop had **15 000** games.

The shop sold:

7 918 games in April

4 624 games in May.

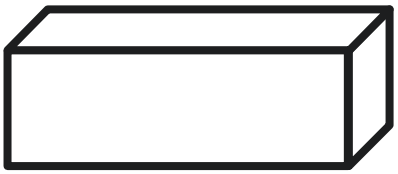
How many games did the shop have left at the end of May?

Show your method.

_____ games

12. **You have a model and four cut–out shapes for this question.**

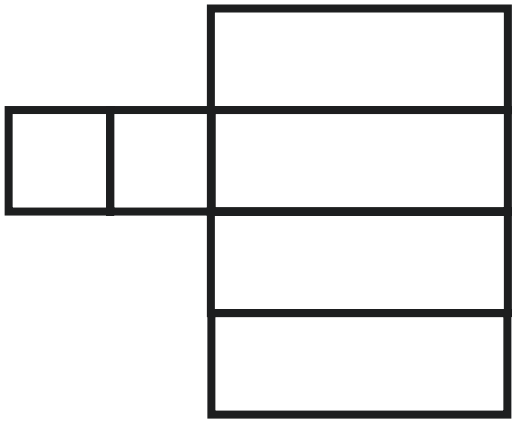
Look at the drawing of a cuboid below.



Now look at the nets on the opposite page.

Write the letters of all the nets that could make the cuboid.

P



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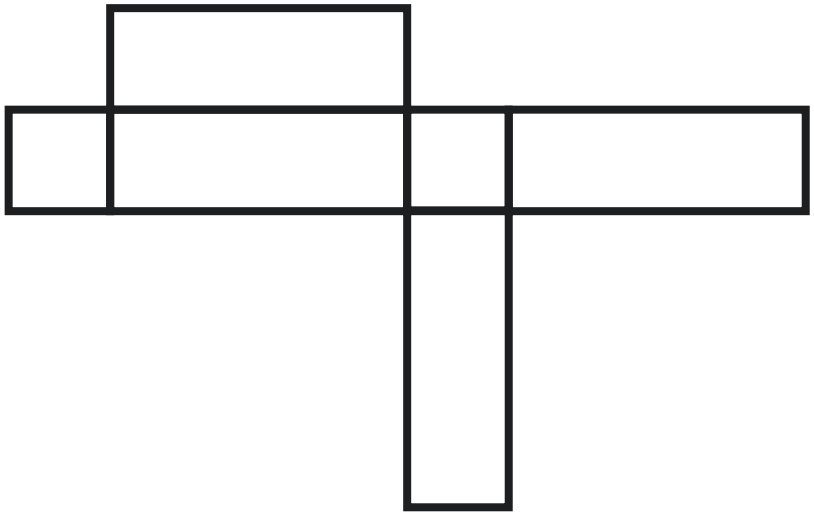

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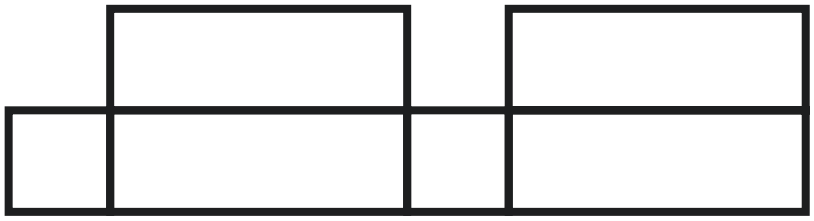

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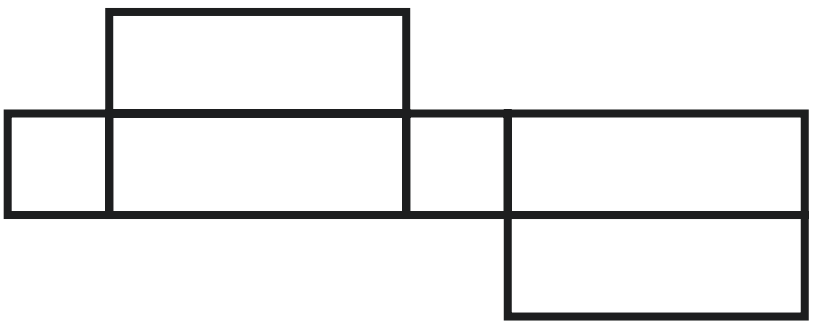

13. Write the missing number to make the calculation below correct.

$$754 \times 6 + 754 \times 3 = 754 \times \square$$

14. **Look at the five digit cards below.**

Use two cards to make a fraction equivalent to 25%

$$\frac{\square}{\square}$$

Use two cards to make a fraction equivalent to 0·4

$$\frac{\square}{\square}$$

15. Amina went to a concert one evening.

a) It took her an hour and twenty minutes to get there from home.

She arrived at ten past seven.

At what time did she leave home?

_____

b) **The concert started at 7:20 pm.**

It finished at 9:05 pm.

How long did the concert last?

_____ **hours**

_____ **minutes**

16. A box of 24 chocolate eggs has a mass of 870 grams.

The empty box has a mass of 30 grams.

What is the mass of one chocolate egg in grams?

Show your method.

_____ g

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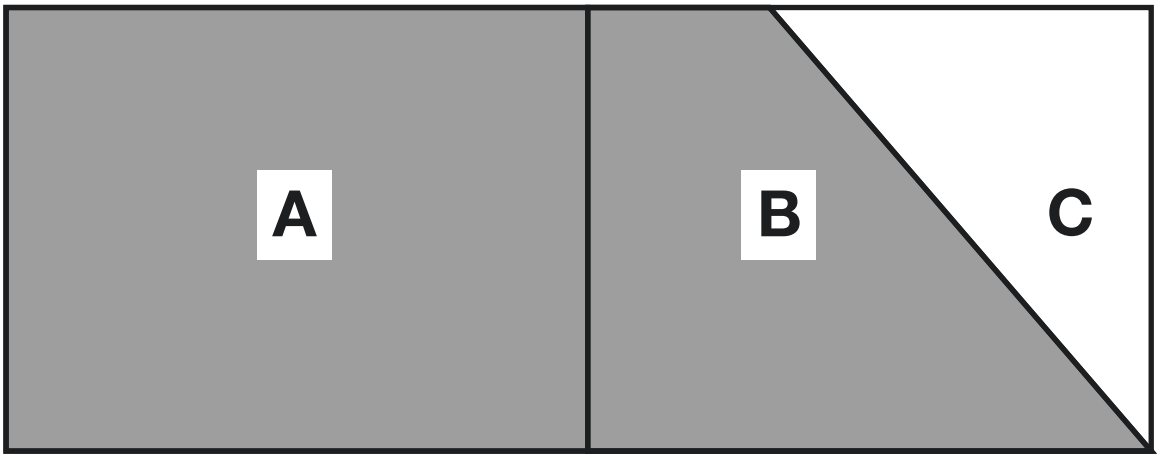
17. **Look at the rectangle below. It is not to scale.**



The rectangle is divided into three parts.

Part A is $\frac{1}{2}$ of the area of the rectangle.

Part B is $\frac{1}{3}$ of the area of the rectangle.

What fraction of the area of the rectangle is shaded?

18. The table below shows the total rainfall and sunshine each year at Heathrow Airport from 2011 to 2015.

Year	Rainfall in mm	Sunshine in hours
2011	509	1 540
2012	700	1 503
2013	560	1 452
2014	864	1 669
2015	562	1 508

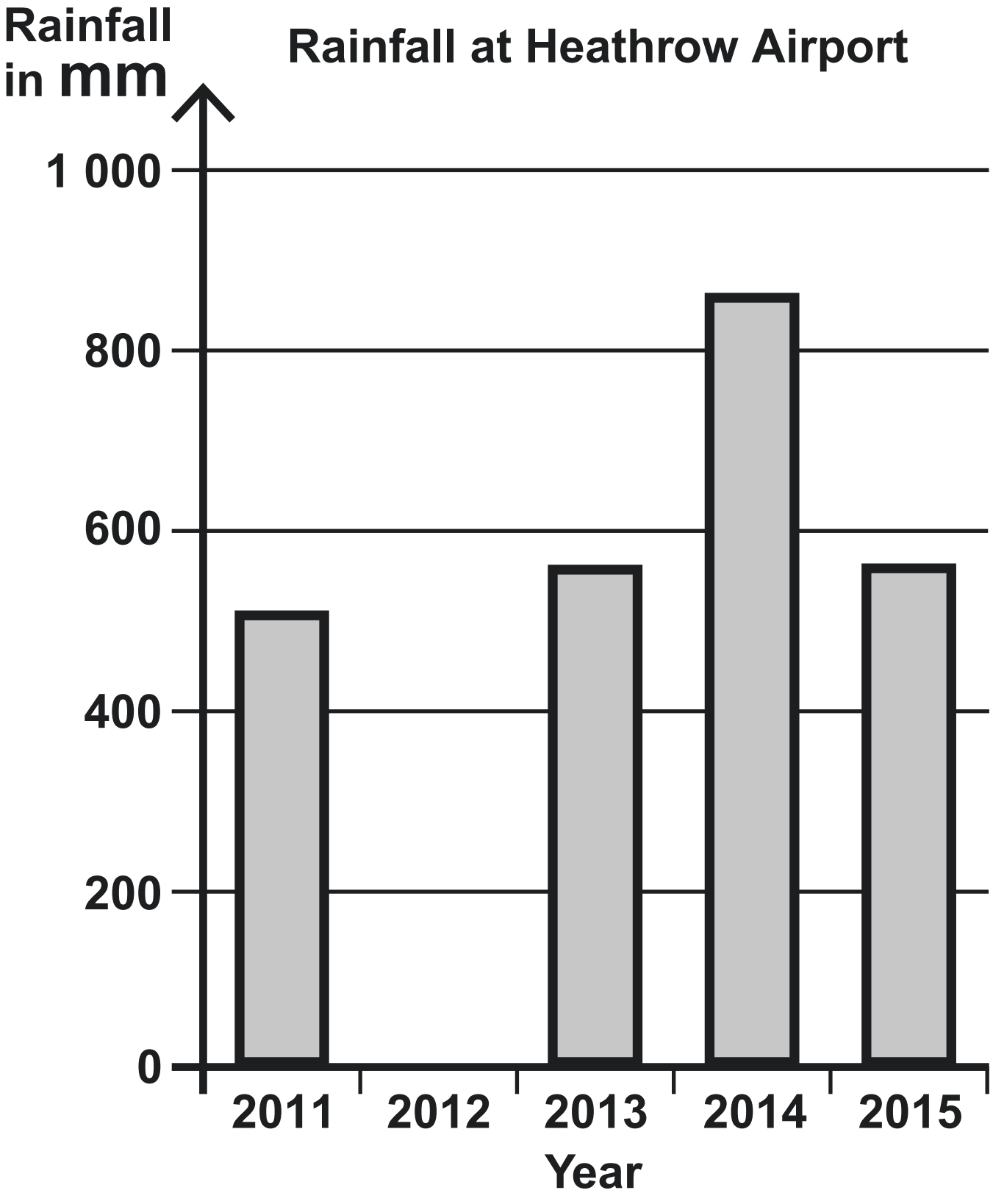
a) **Use the table to calculate the mean hours of sunshine for Heathrow Airport from 2013 to 2015.**

Show your method.

_____ **hours**

b) Use the table on page 26 to complete the graph below.

Use a ruler.



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19. These are the prices of some vegetables in a shop.

Mushrooms cost £3·20 for 1 kg

Carrots cost 60p for 1 kg

Layla buys 500 grams of mushrooms and $1\frac{1}{4}$ kg of carrots.

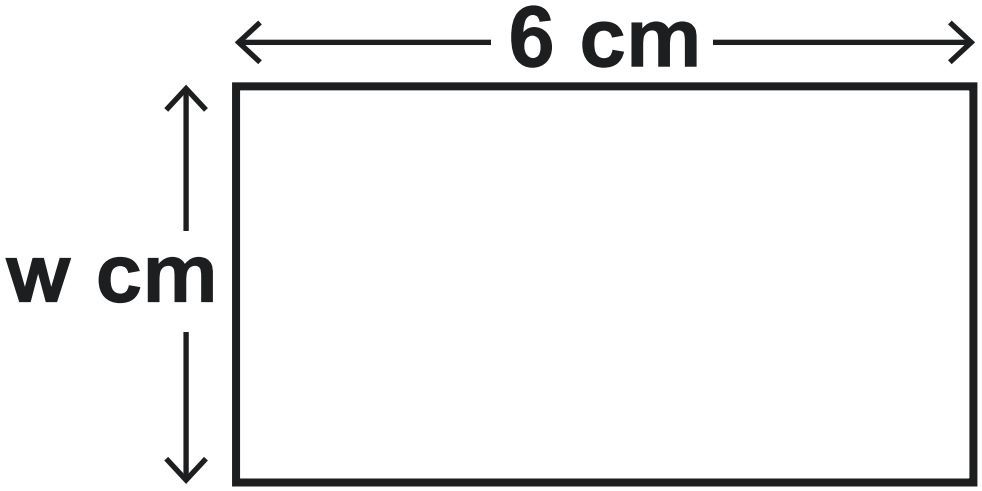
She pays with a £5 note.

How much change does Layla get?

Show your method.

£ _____

20. **Look at the rectangle below. It is not to scale.**



The length is 6 cm.

The width is w cm.

Tick or mark all the methods below that can be used to work out the perimeter of the rectangle.

$w \times 6$	$w \times 2 + 12$
$2 \times (w + 6)$	$6 + w + 6 + w$

21. There are 25 classes in a school.

Each class has 34 pupils.

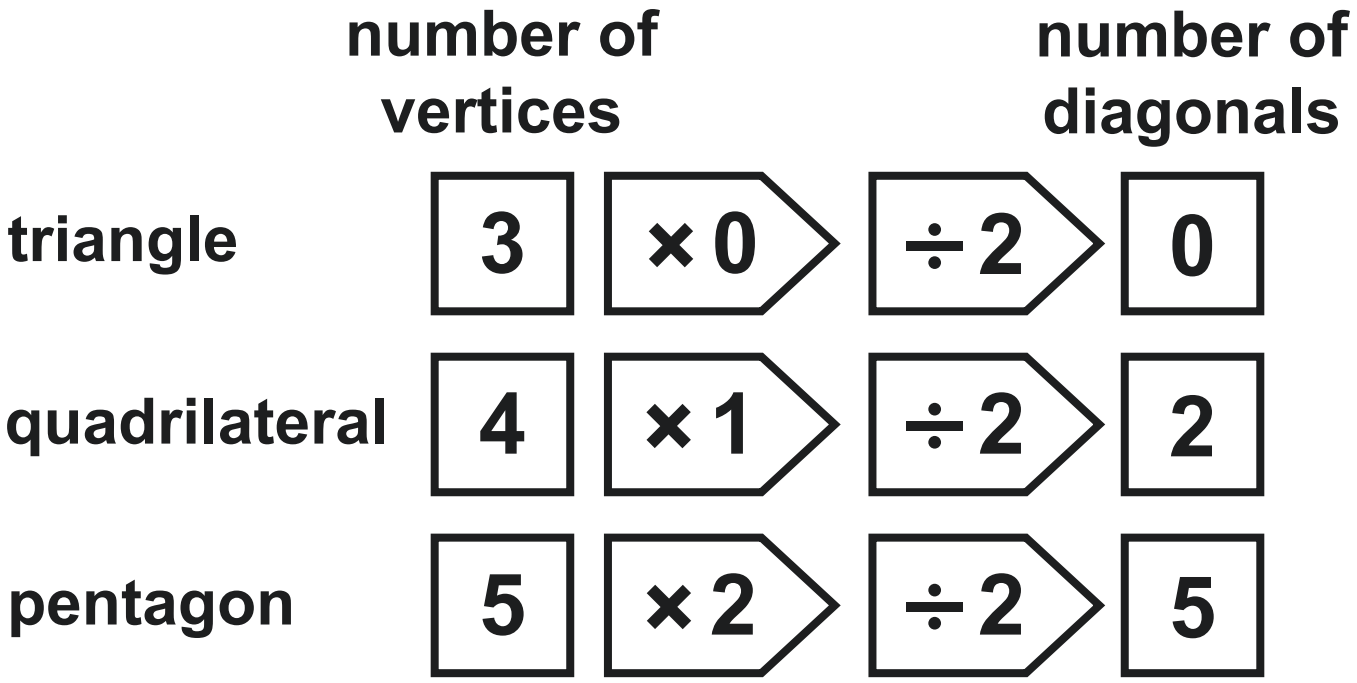
62% of all the pupils play a sport after school.

What number of pupils do not play a sport?

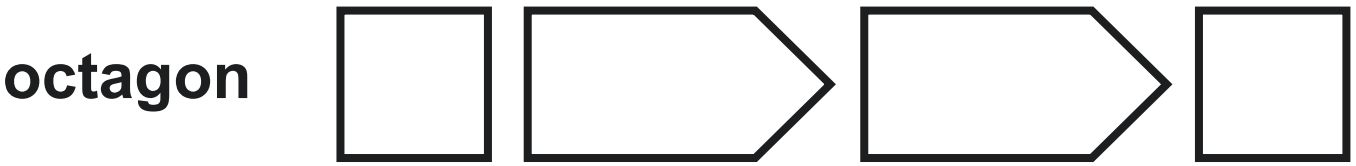
Show your method.

_____ pupils

22. **Megan uses the number machines below to calculate how many diagonals different shapes have.**



Complete the number machine for the octagon in the boxes below.



23. **Look at the table below.**

Write the two missing decimals in the empty boxes.

One has been done for you.

a	b	$\frac{a}{b}$
1	4	0·25
3	20	
5	8	

End of test

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Standards & Testing Agency

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Electronic PDF version product code: STA/23/8719/MLe_24pt ISBN: 978-1-83507-222-6

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