United Curriculum
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United Curriculum
End-of-Year Assessment 2023-24

Mathematics

Time: 1 hour

Year 9

Paper 1 – Non-calculator assessment

Student surname:

Student first name(s):

Class Name / Number:

You must have: a pencil, tracing paper and a protractor.

Instructions

- Fill in the boxes on the front page.
- Use a black ink pen. Draw diagrams in pencil.
- Do not use a calculator.
- The marks for each question are shown.
- Answer the questions in the space provided.
- Show **clearly** how you work out your answer.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Advice

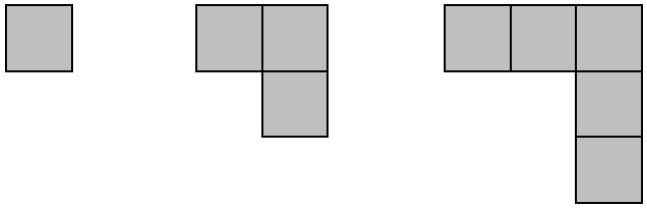
- Read each question carefully before you begin.
- Try your best to answer every question. If you have time, go back and review your answers.

For Teacher use only:

TOTAL MARKS		PERCENTAGE
	60	

Question 1

1a. A pattern is shown below. Draw the next image in the pattern.



1

1b. A **decreasing** sequence is shown below.

51 46 41 36 ...

What is the next number in the sequence?

Answer = ...

1

Question 2

2a. Work out

$714 \div 3$

Answer = ...

1

2b. Work out

63×7

Answer = ...

1

Question 3

A TV streaming service costs £8.95 per month.

Estimate how much will it cost for six months?

Answer = ...

2

Question 4

4a. Factorise fully

$15y - 35$

Answer = ...

1

4b. Expand

$7m(2m - 3)$

Answer = ...

1

Question 5

Work out

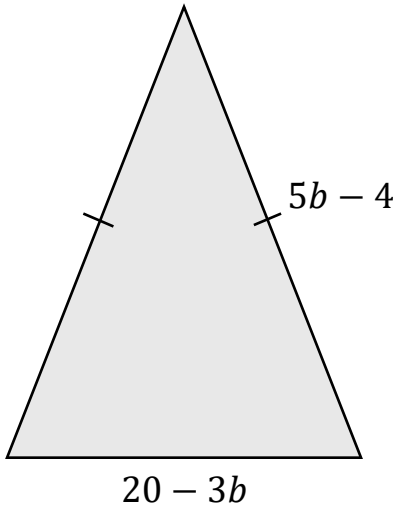
$126 \div 0.3$

Answer = ...

2

Question 6

Write an expression for the perimeter of this **isosceles** triangle.

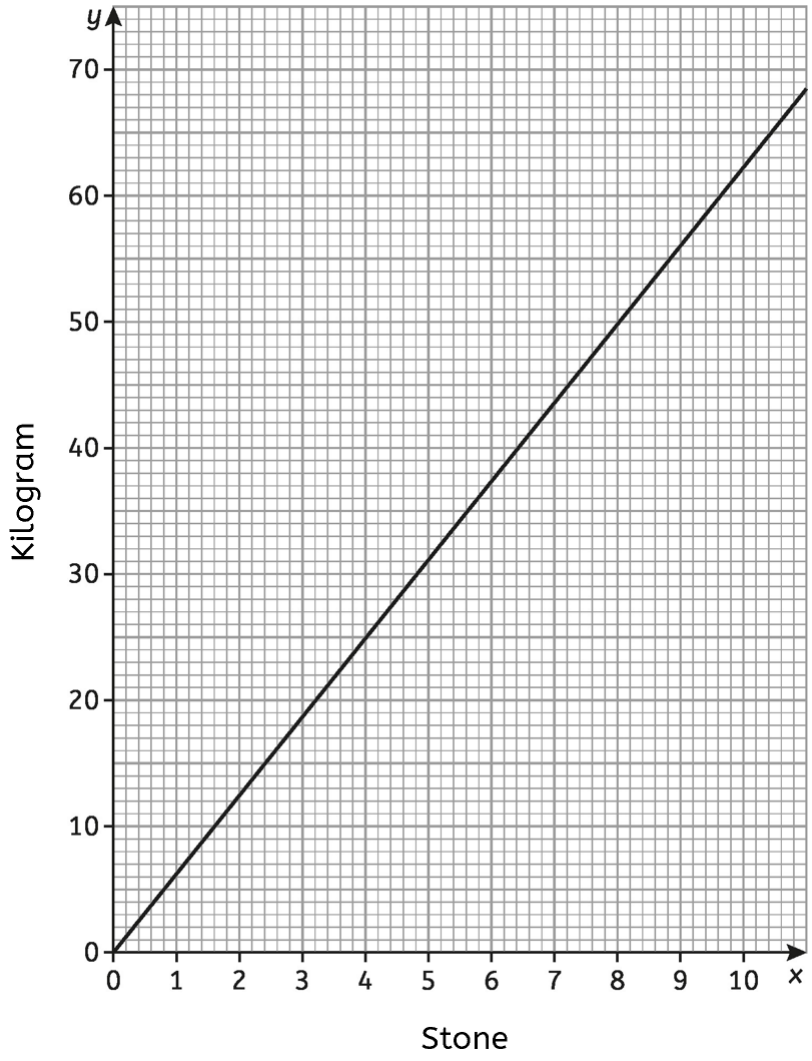


Answer = ...

2

Question 7

You can use this graph to convert between stones and kilograms.



7a. Convert 4 stones to kilograms.

Answer = ... kg

	1

7b. Convert 90 kilograms to stones.

Answer = ... st

	2

Question 8

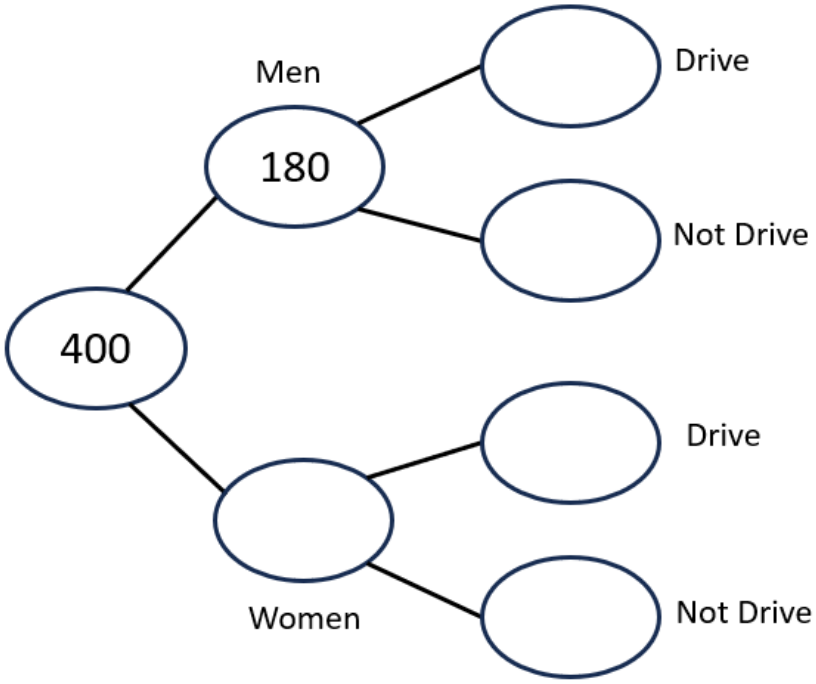
400 people are asked if they can drive.

180 were men and the rest were women.

70% of the men could drive.

$\frac{3}{11}$ of the women could **not** drive.

8a. Complete the frequency tree.



	3

8b. Find the probability that one of the people asked **can** drive.

Answer = ...

	2

Question 9

Calculate

$$\frac{5}{8} \div \frac{7}{12}$$

Leave your answer in its simplest form.

Answer = ...

2

Question 10

$$5x + 3 = x - 15$$

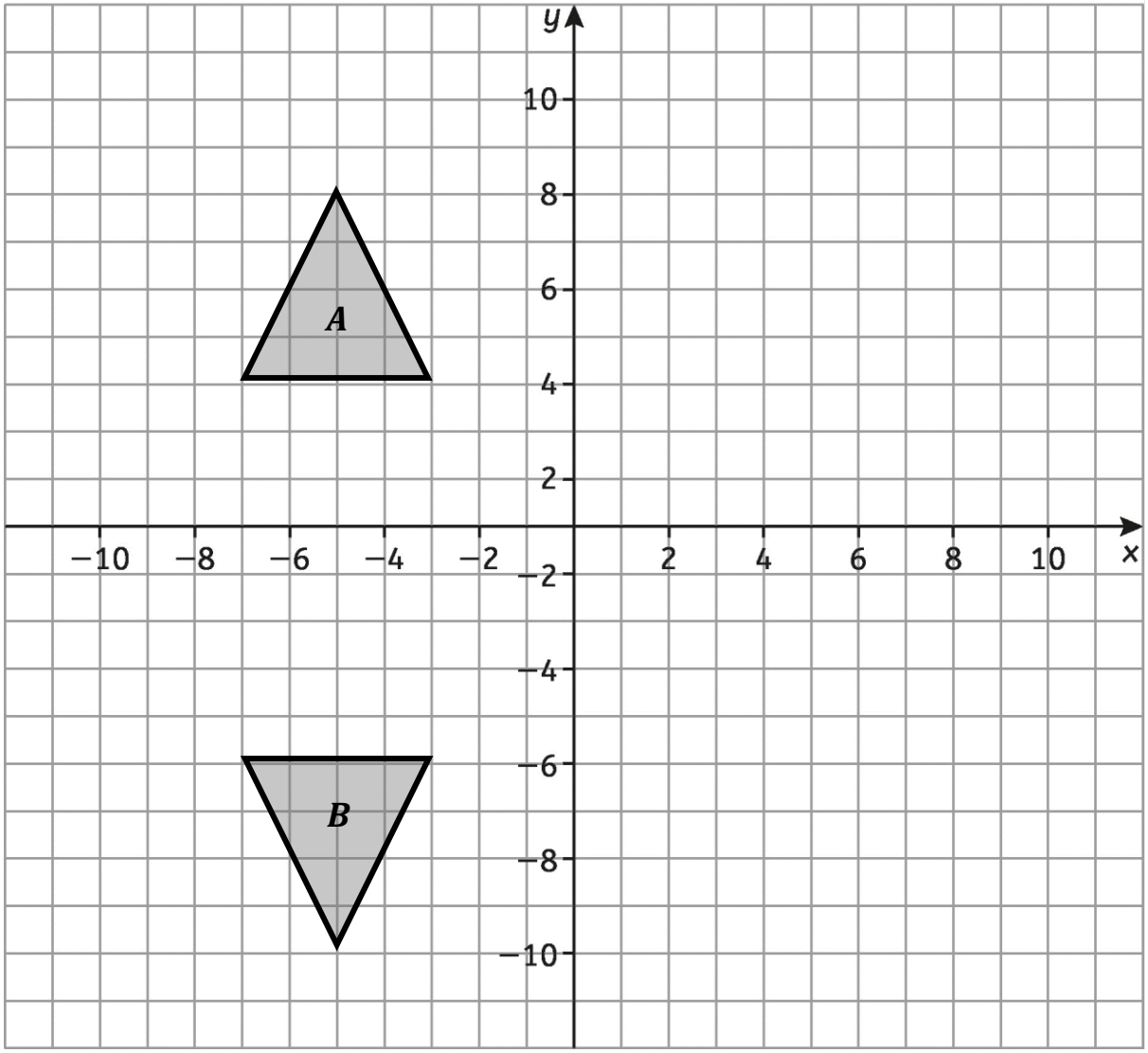
Answer = ...

3

Question 11

Object A has been reflected to give Image B.

Draw the line of symmetry on the axes.



	1

Question 12

Write the following numbers in standard form.

12a. 35000

Answer = ...

1

12b. 0.00475

Answer = ...

1

Question 13

Find the value of b when $p = -7$

$$b = \frac{(10 - 2p)}{4}$$

Answer = ...

2

Question 14

Write 120 as a product of its prime factors.

Answer = ...

2

Question 15

Work out $4\frac{1}{6} - 2\frac{3}{4}$

Give your answer as a mixed number.

Answer = ...

3

Question 16

Evaluate each of the following and then put them in order from smallest to largest.

$\frac{5}{8}$ *of* 120 $\quad$ 75% *of* 108 $\quad$ $\frac{6}{5}$ *of* 65 $\quad$ $\frac{6}{7}$ *of* 84

Answer = ...

3

Question 17

Calculate 27.1 × 4.6

Answer = ...

3

Question 18

18a. 123 × 456 = 56 088

Without using long multiplication, write down the value of 12.3 × 45.6

Answer = ...

1

18b. 123 × 456 = 56 088

Without using short division, write down the value of 56 088 ÷ 1.23

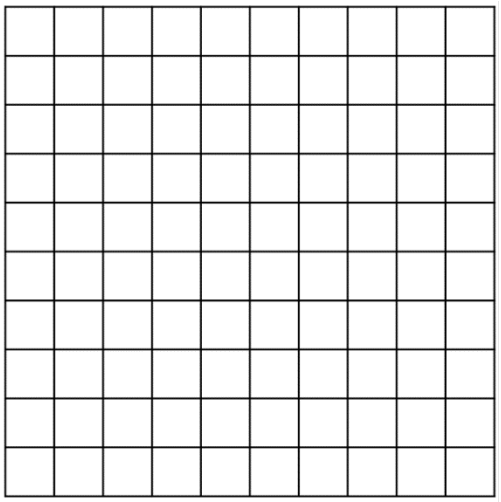
Answer = ...

1

Question 19

19a. Draw the following vector on the grid below.

$$\begin{pmatrix} 7 \\ -3 \end{pmatrix}$$



	1

19b. Two column vectors are given below.

$$\boldsymbol{a} = \begin{pmatrix} 2 \\ 5 \end{pmatrix} \qquad \boldsymbol{b} = \begin{pmatrix} 4 \\ -1 \end{pmatrix}$$

Work out

$$\boldsymbol{a} + \boldsymbol{b}$$

Answer = ...

	1

Question 20

Find x.

$27 \times 3^5 \times 9 = 3^x$

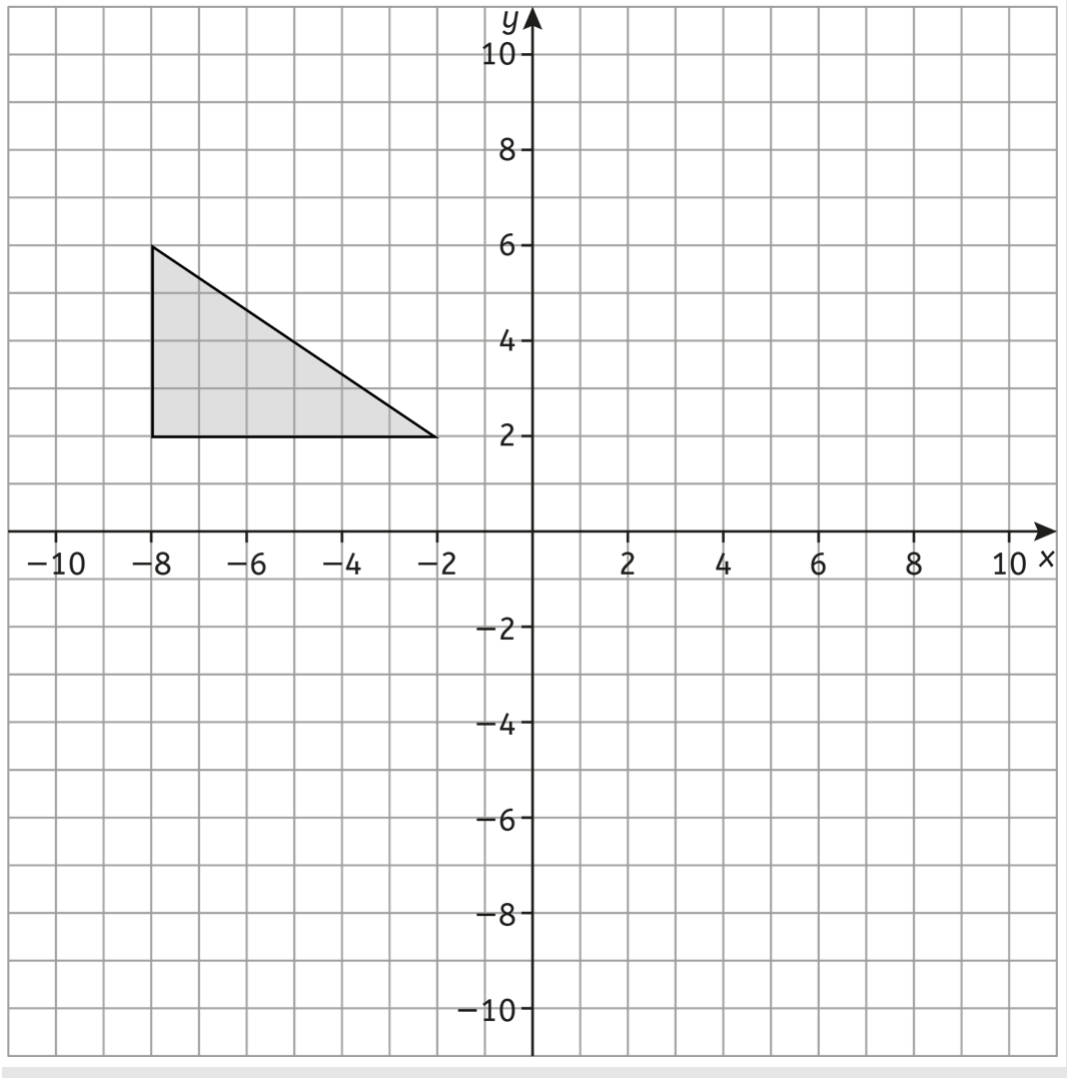
Answer = ...

	2

Question 21

Rotate the triangle $90°$ clockwise about the origin.

Label your image A.



	2

Question 22

Solve the inequality $4y - 1 \leq 19$

Answer = ...

	2

Question 23

A lucky dip has three types of prizes.

The table shows the probability of getting each prize.

You are 4 times likelier to get a keyring than a cuddly toy.

	Keyring	Bag of sweets	Cuddly Toy
Probability		0.25	

23a. Work out the probability of choosing a cuddly toy.

Answer = ...

	2

23b. There are 200 prizes in the lucky dip.

Work out an estimate for the number of bags of sweets.

Answer = ...

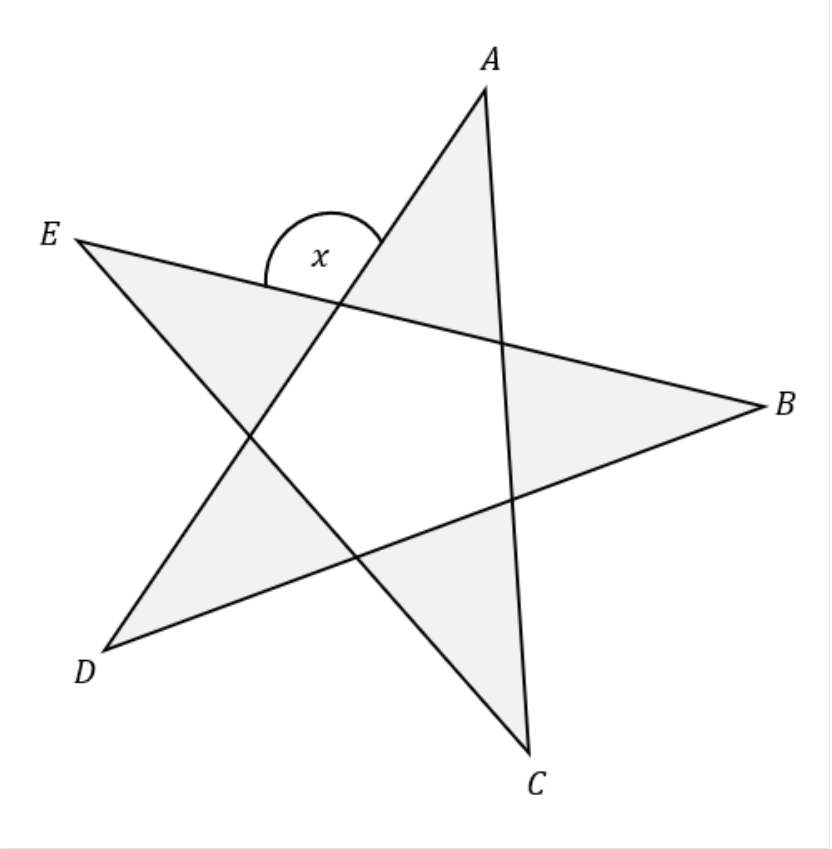
	2

Question 24

The star is made up from a regular pentagon and five identical triangles.

Line segment $AD = AC = BE = BD = CE$

Find the size of angle x. Give a reason for your final answer.



	3

Question 25

Show that

$$36^{\frac{1}{2}} < \left(\frac{1}{3}\right)^{-2}$$

	2

END OF ASSESSMENT

This is the end of the assessment.
There are no questions printed on this page.