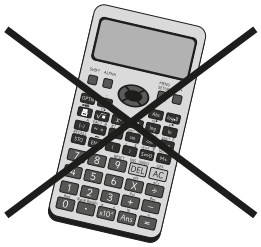
Autumn Assessment

Year 10

Mathematics



Paper 3 (Non-Calculator)
Higher Tier

Surname	Other names

You should have:
A pen, pencil, ruler and an eraser.
Tracing paper may be used.

Information

- The total mark for this paper is 50
- The marks for each question are shown in brackets.
- Answer all questions in the spaces provided – *there may be more space than you need.*
- You must show all your working.
- Diagrams are not accurately drawn, unless otherwise indicated.
- Calculators may not be used.
- Check your answers if you have time at the end.

This assessment has been designed by White Rose Maths.
For more information, please visit **www.whiterosemaths.com**

1 **a)** Work out $6^2 + \sqrt{81}$

(2 marks)

b) Estimate the value of $\frac{53 \times 97}{22}$

You must show all your working.

(2 marks)

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2 Here are the maximum daily temperatures in a town over one week.

−2°C 5°C 0°C −7°C 4°C 3°C 2°C

Find the range of the maximum daily temperatures.

(2 marks)

3 **a)** Expand and simplify $(x - 7)(x + 4)$

(2 marks)

b) Simplify $5a^2 \times 6a^{-1}$

(2 marks)

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4 **a)** Work out $\frac{5}{7} - \frac{3}{5}$

(2 marks)

b) i) Write 6.3×10^{-4} as a decimal number.

(1 mark)

ii) Find the value of $\frac{1.8 \times 10^{7}}{3 \times 10^{2}}$

Give your answer in standard form.

(2 marks)

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5 A company gives a bonus to two salespeople, Miss Xu and Ms Trent, in the ratio of the sales they make in January.

Miss Xu made sales of £24 000 in January.

Ms Trent made sales of £30 000 in January.

a) Write the ratio that will be used to share the bonus in its simplest form.

_____

(1 mark)

b) The total bonus is £5850

How much will each person receive?

Miss Xu receives _____ Ms Trent receives _____

(3 marks)

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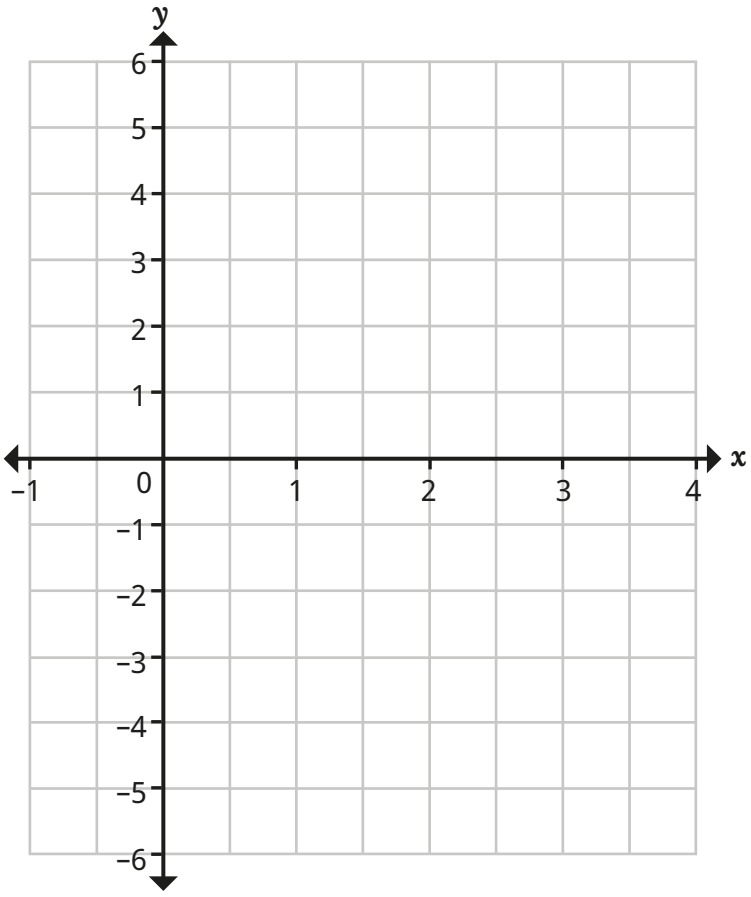
6 **a)** Complete the table of values for $y = 2x - 3$

x	–1	0	1	2	3	4
y		–3			3	

(2 marks)

b) On the grid, draw the graph of $y = 2x - 3$



(2 marks)

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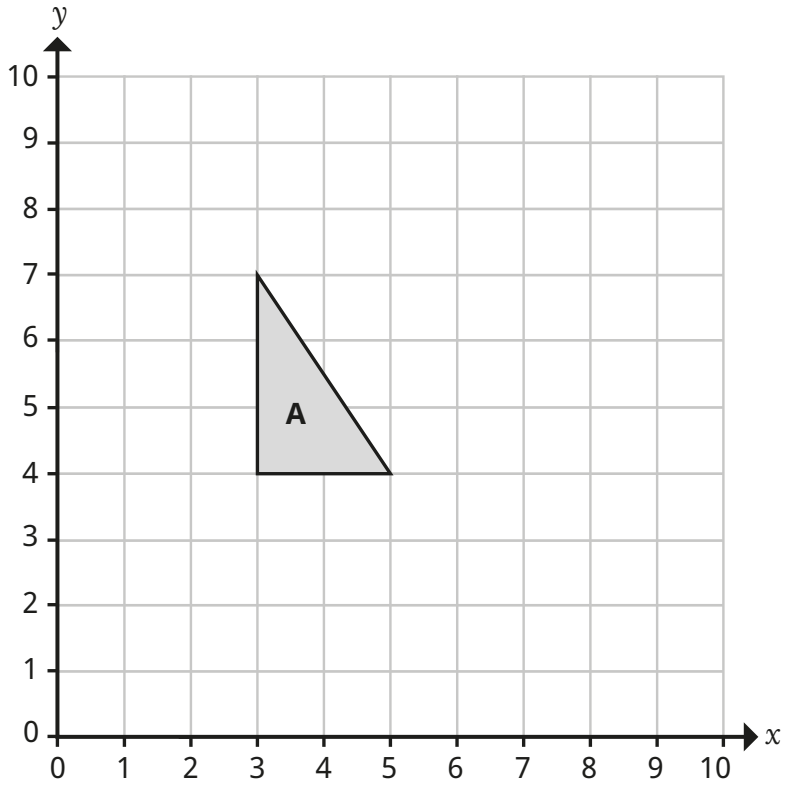
7 Triangle A is shown on the grid.



On the grid, translate A by the vector $\begin{pmatrix} 4 \\ -1 \end{pmatrix}$

(2 marks)

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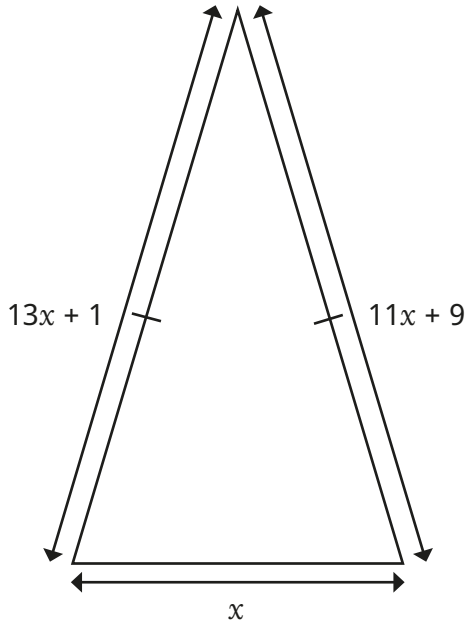
8



a) Explain why $13x + 1 = 11x + 9$

(1 mark)

b) Solve $13x + 1 = 11x + 9$

_____

(2 marks)

c) Use your answer to part b) to work out the perimeter of the triangle.

_____ units

(2 marks)

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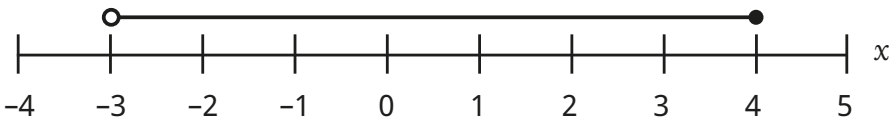
9 Here is an inequality, in x, shown on a number line.



Write the inequality.

(2 marks)

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10 Solve the simultaneous equations.

$$3x + 2y = 4$$
$$4x + 5y = 17$$

x = _____

y = _____

(4 marks)

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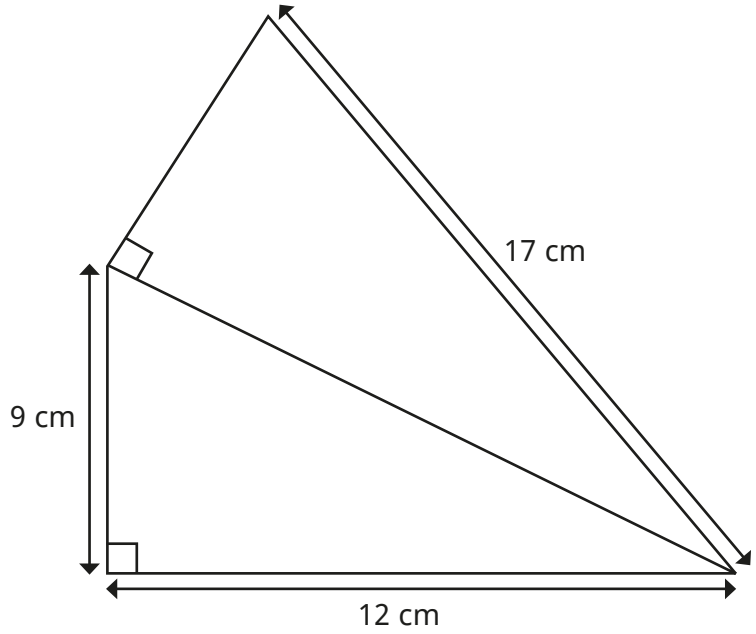
11 A logo consists of two right-angled triangles joined together as shown.

Find the perimeter of the logo.



(3 marks)

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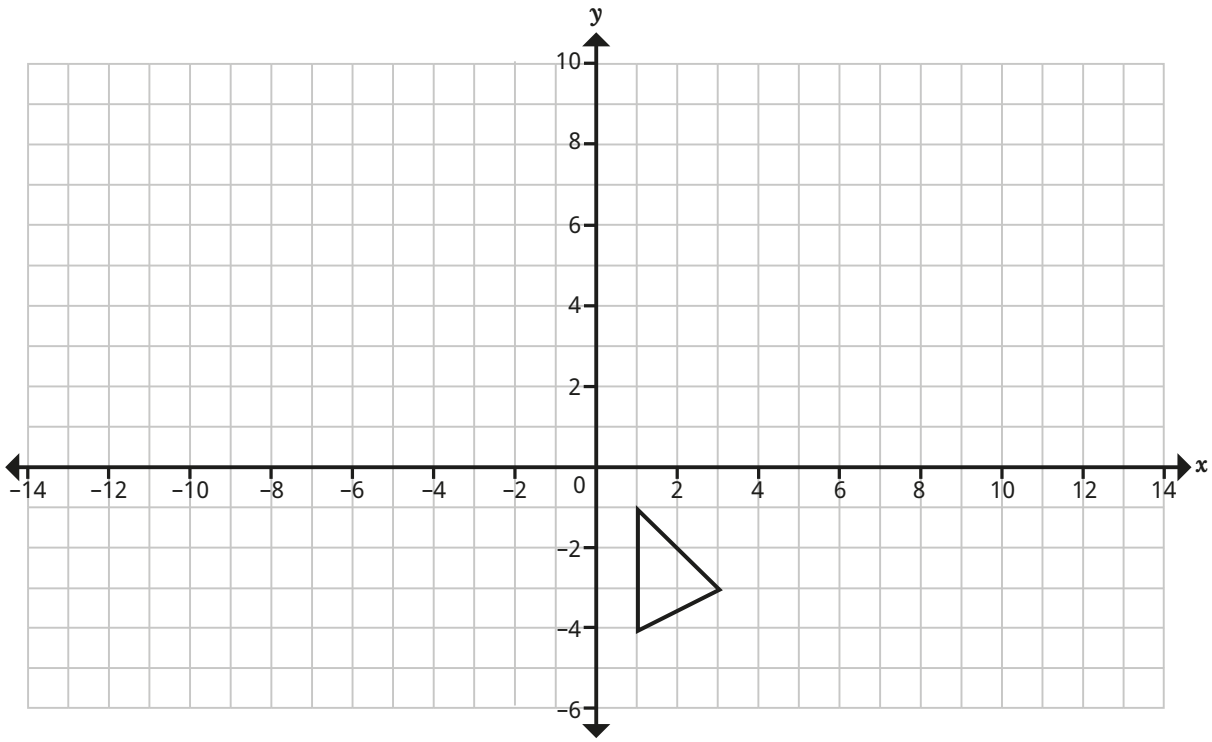
12 Enlarge the triangle by a scale factor of –2, centre (–2, 0).



(3 marks)

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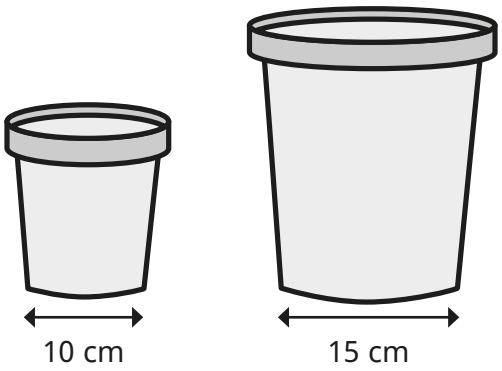
13 Two similar plant pots are shown.



When the smaller plant pot is full, it holds 0.8 litres of compost.

Calculate how many litres of compost the larger pot holds when it is full.

(2 marks)

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14 Find the values of x for which $x^2 + 2x - 15 < 0$

(3 marks)

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15 ABC is a triangle.

AB = 8 cm, BC = 12 cm and $\angle ABC = 30°$.

Show that the area of triangle ABC is 24 cm^2

(3 marks)

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