

GCSE
MATHEMATICS (8300)
HIGHER
Algebra

Total number of marks: 33 per optional item

Q5

Solve $5(x + 3) < 60$

(Total 2 marks)**Q10**

Work out the next term of this quadratic sequence.

5 8 14 23

(Total 2 marks)**Q5**

Solve $4(3x - 2) = 2x - 5$

 $x =$ _____**(Total 3 marks)**

Q9

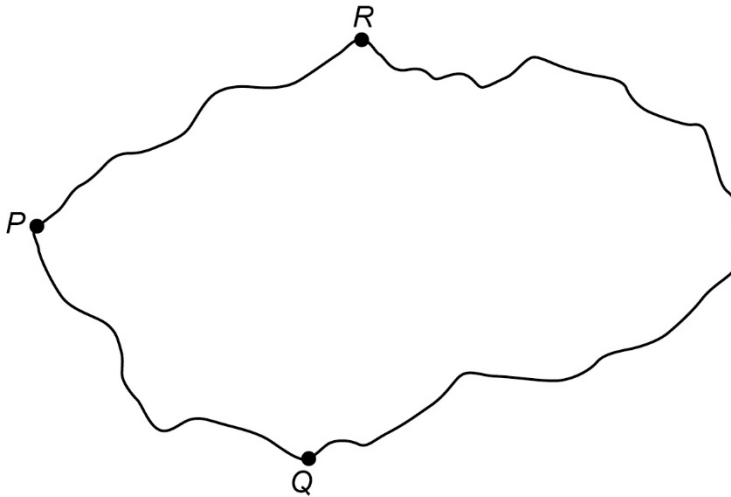
Towns P , Q and R are connected by roads PQ , PR and QR .

PR is 10 km longer than PQ .

QR is twice as long as PR .

The total length of the three roads is 170 km

Not drawn accurately



Work out the length of PQ .

Answer _____ km

(Total 4 marks)

Q26

Expand and simplify $(x - 4)(2x + 3y)^2$

(Total 4 marks)

Q2

P is $(4, 9)$ and Q is $(-2, 1)$

Circle the midpoint of PQ .

$(1, 5)$

$(3, 4)$

$(3, 5)$

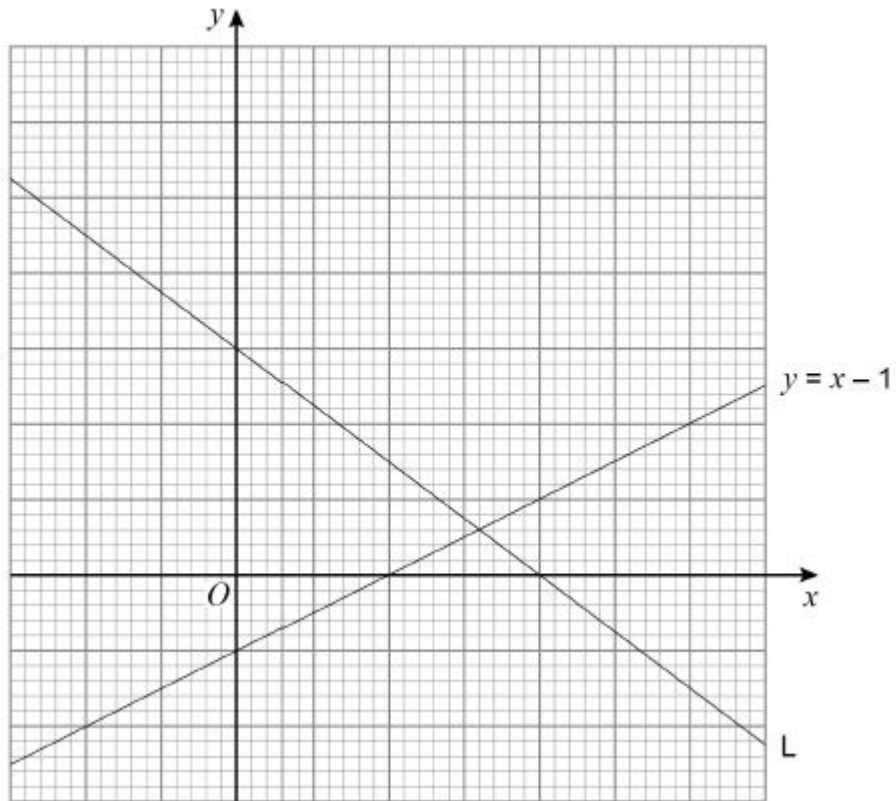
$(6, 8)$

(Total 1 mark)

Q15

Here is line L and the graph of $y = x - 1$

The scales of the axes are not shown.



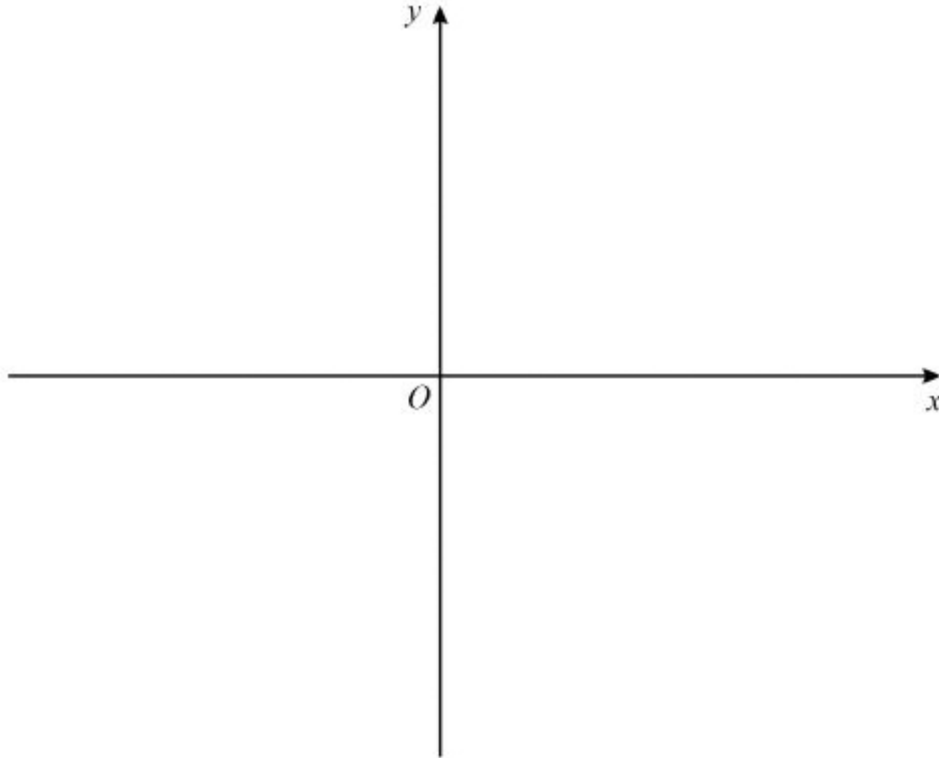
Work out the equation of line L.

(Total 4 marks)

Q8

On the axes, sketch the curve $y = x^3 - 2$

You **must** show the coordinates of the y -intercept.



(Total 2 marks)

Q21

Here are the first four terms of a quadratic sequence.

11 26 45 68

Work out an expression for the n th term.

(Total 3 marks)

Q22

The **only** solution to $x^2 + bx + c = 0$ is $x = 5$

Work out the values of b and c .

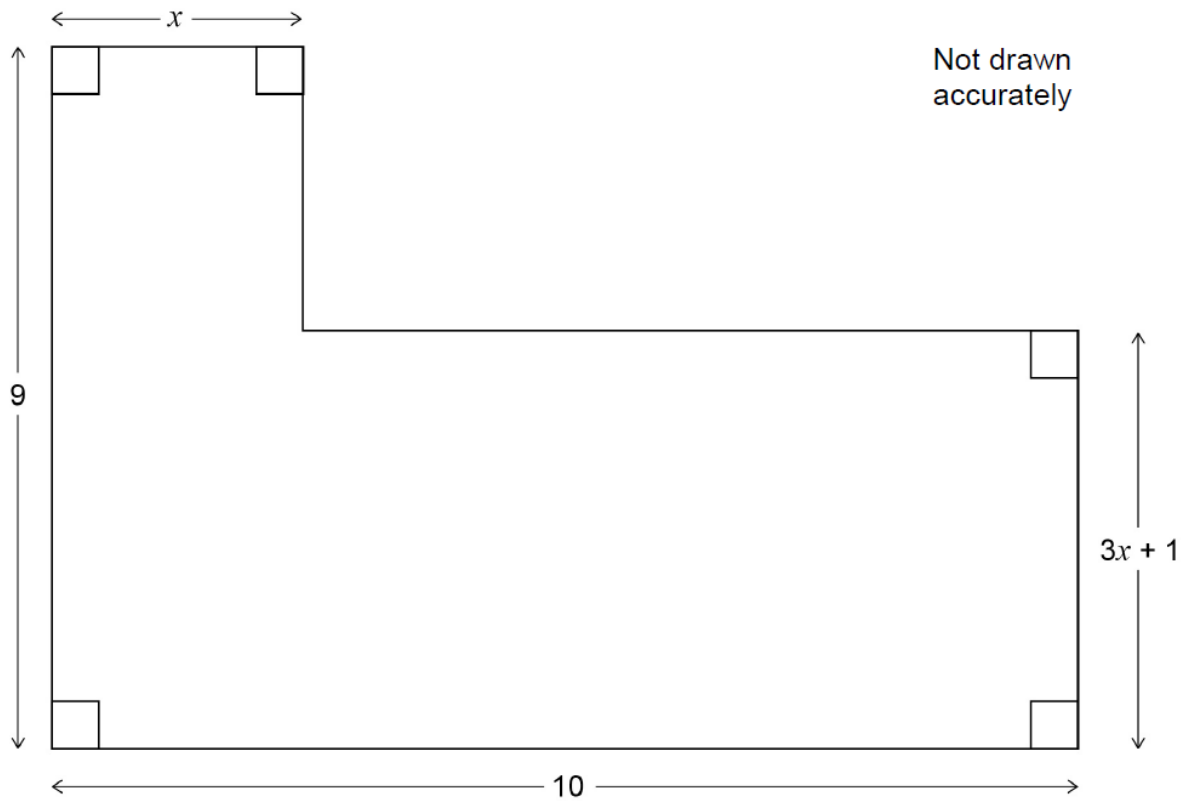
$b =$ _____ $c =$ _____

(Total 2 marks)

Q26

Here is an L-shape.

All dimensions are in centimetres.



The area of the L-shape is 65 cm^2

Work out the value of x .

(Total 6 marks)