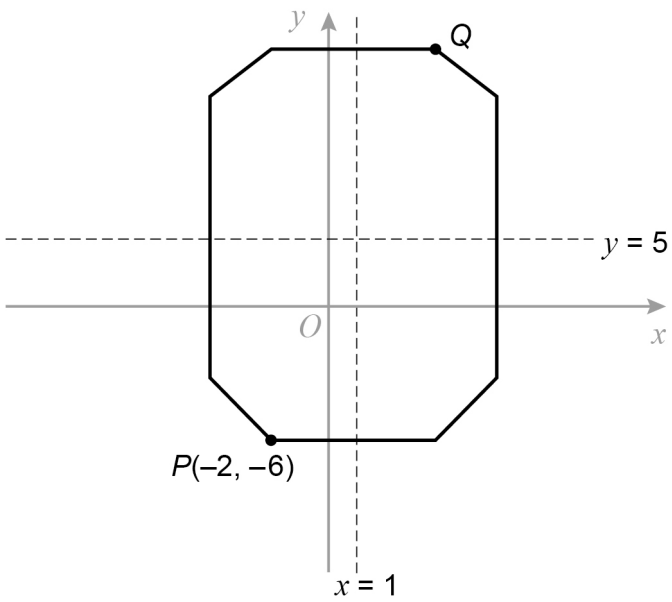
1 *A* is (2, 13) and *B* is (10, 1)

Circle the midpoint of *AB*.

[1 mark]

(4, 6) (5, 6.5) (6, 7) (8, 12)

2 The diagram shows an octagon.



Not drawn accurately

$x = 1$ and $y = 5$ are lines of symmetry.

Work out the coordinates of point Q.

[2 marks]

Answer (_____ , _____)

3 A line has equation $3y = 3x - 2$

Circle the coordinates of the intercept of the line with the y-axis.

[1 mark]

(0, 1) (0, –1) $\left(0, \frac{2}{3}\right)$ $\left(0, -\frac{2}{3}\right)$

4 *P* is the point (2, 14)

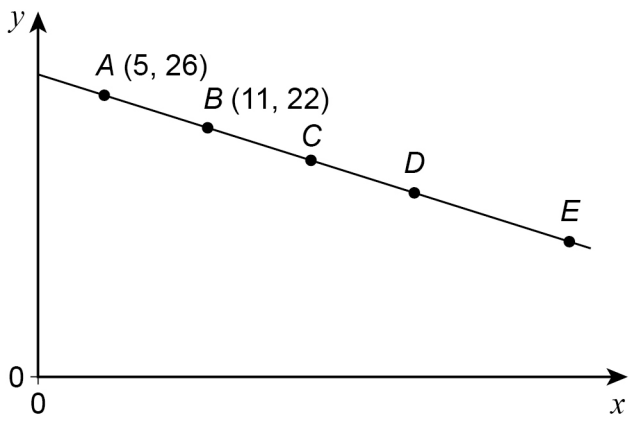
Q is the point (6, 8)

R is the point (2, 5)

Use gradients to show that angle *PQR* is **not** a right angle.

[3 marks]

5 *A*, *B*, *C*, *D* and *E* are points on a straight line.



Not drawn accurately

A, *B*, *C* and *D* are equally spaced.

AD : *DE* = 2 : 1

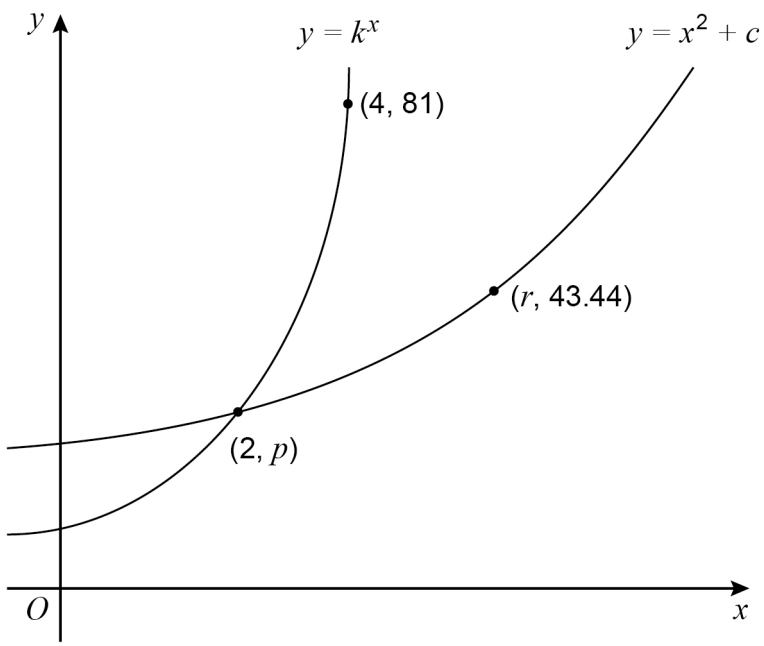
Work out the coordinates of *E*.

[3 marks]

Answer (_____ , _____)

6 Here is a sketch of the graphs of $y = k^x$ and $y = x^2 + c$

k and c are positive constants.

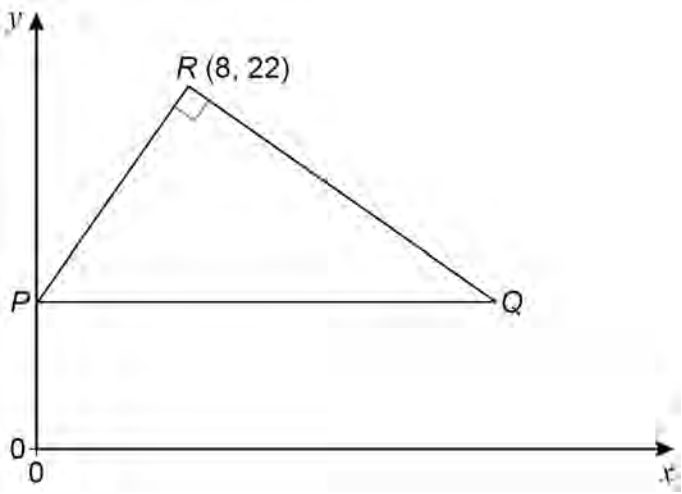


Work out the value of r.

[4 marks]

$r =$ _____

7 Points *P*, *Q* and *R* (8, 22) form a triangle.



Not drawn accurately

PQ is a horizontal line, with *P* on the *y*-axis.

Angle *PRQ* is a right angle.

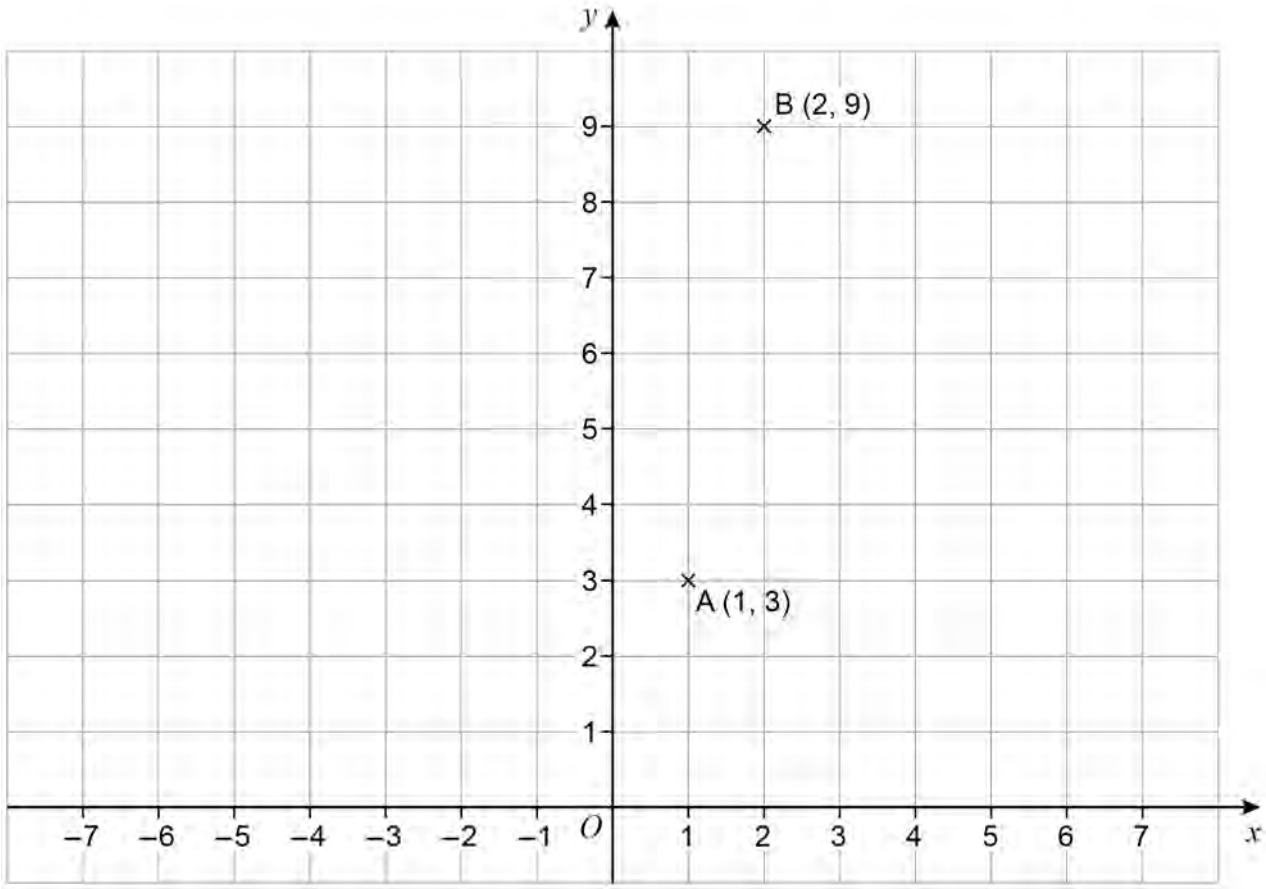
The gradient of *PR* is 2

Work out the coordinates of *Q*.

[5 marks]

Answer (_____ , _____)

8 A (1, 3) and B (2, 9) are points on a centimetre grid.



ABCD is a parallelogram.

AD and BC are **horizontal** and each has length 5 cm

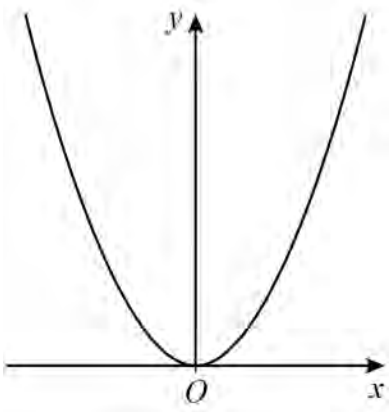
The diagonals of ABCD cross at E.

Work out the **two** possible pairs of coordinates of E.

[4 marks]

Answer (_____ , _____) and (_____ , _____)

9 Here is a sketch of $y = x^2$



9 (a) The minimum point of $y = x^2$ is at (0, 0)

Write down the coordinates of the minimum point of $y = x^2 + 2$

[1 mark]

Answer (_____ , _____)

10 The line with equation $y = 2x + 7$ intersects the y-axis at A.

Complete the coordinates of A.

[1 mark]

Answer (0 , _____)

11 A graph has the equation $y = x^2 + px + r$ where p and r are constants.

The graph passes through the points (0, 4), (1, 3) and (8, w)

Work out the value of w.

[4 marks]

$w =$ _____

12 The equation of a line is $y = 3x - 6$

Circle the coordinates of the y-intercept.

[1 mark]

(0, –6) (–6, 0) (0, 3) (3, 0)

13 *P* and *Q* are points.

The x-coordinate of *Q* is 4 **more** than the x-coordinate of *P*.

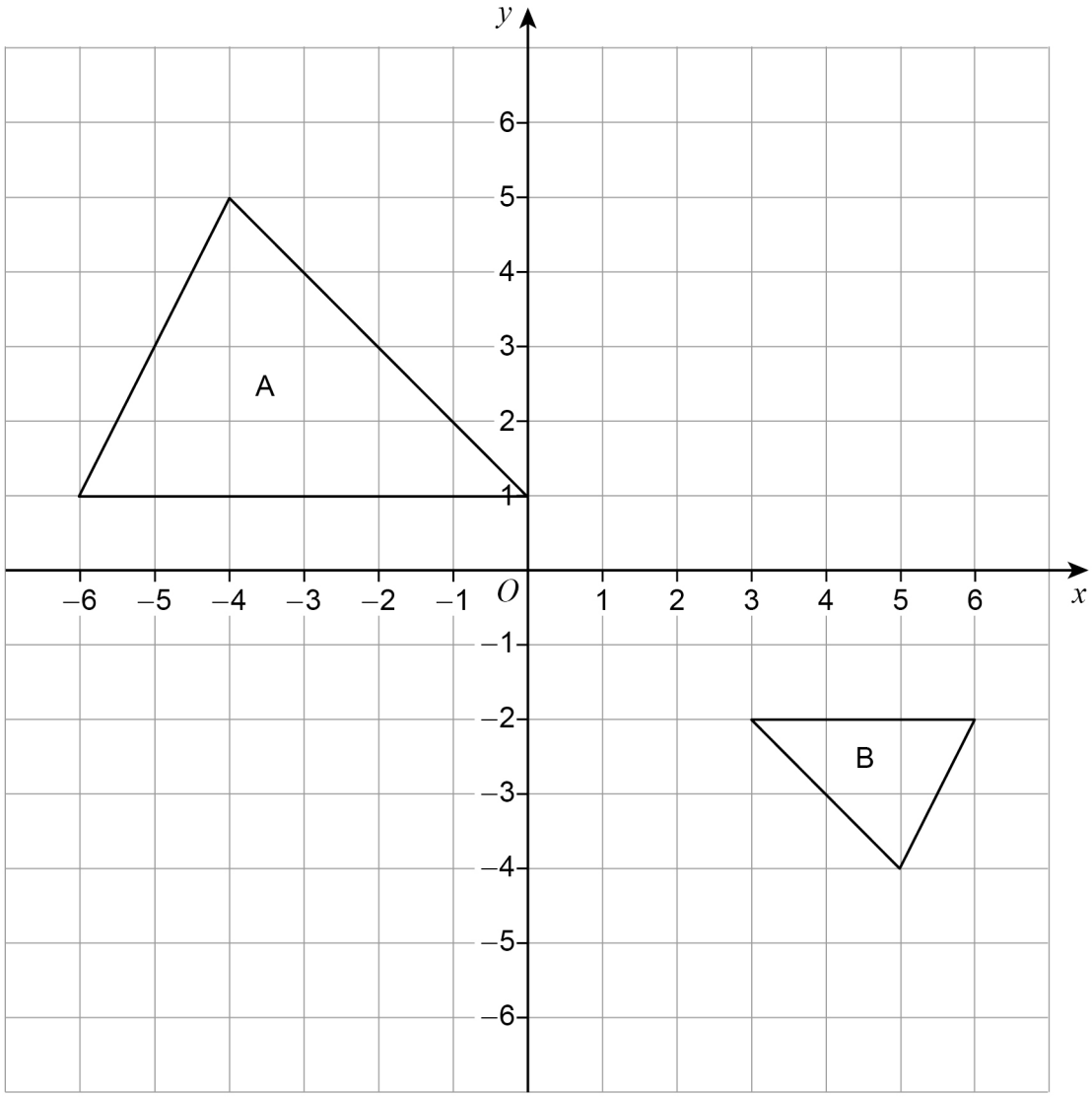
The y-coordinate of *Q* is 5 **less** than the y-coordinate of *P*.

Work out the gradient of the straight line through *P* and *Q*.

[2 marks]

Answer _____

14 Shape A is enlarged to shape B.

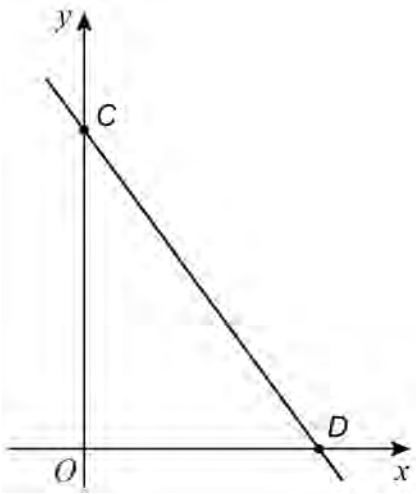


14 (a) Write down the coordinates of the centre of enlargement.

[1 mark]

Answer (_____ , _____)

15 (a) Here is a sketch of the graph $y = -2x + 6$



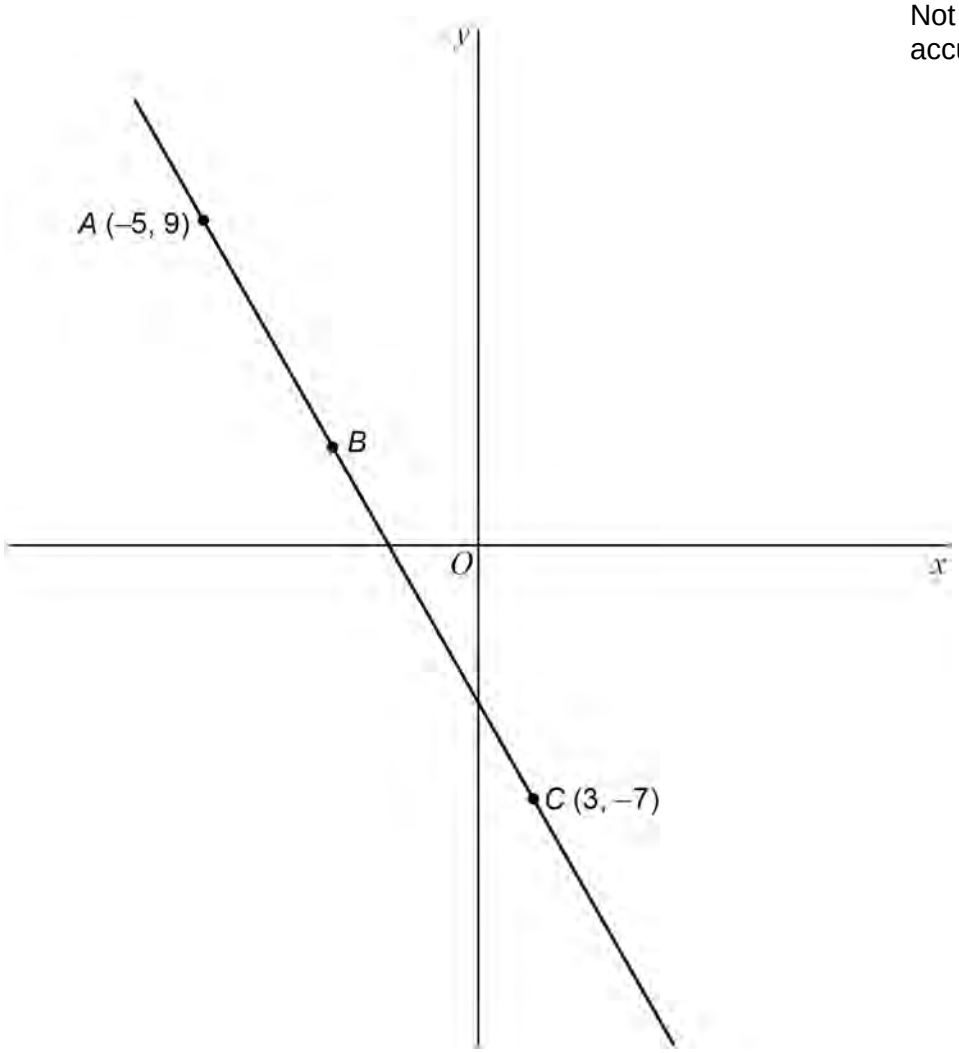
Complete the coordinates of *C* and *D*.

[2 marks]

C (0 , _____) *D* (_____ , 0)

16 A straight line passes through points A (–5, 9), B and C (3, –7).

Not drawn accurately



16 (a) $AB : BC = 1 : 3$

Work out the coordinates of point B.

[3 marks

Answer (_____ , _____)