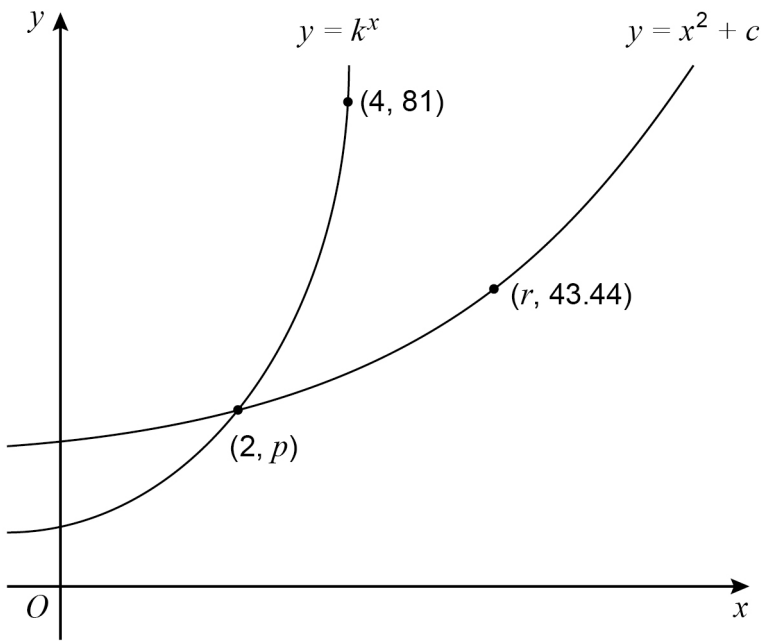
1 Here is a sketch of the graphs of $y = k^x$ and $y = x^2 + c$

k and c are positive constants.

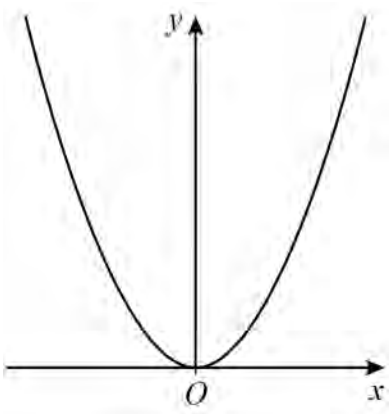


Work out the value of r.

[4 marks]

$r =$ _____

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



2 (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 (_____ , _____)

2 (b) The graph $y = x^2$ is reflected in the x axis.

Write down the equation of the graph after this transformation.

[1 mark]

Answer _____

2 (c) $y = x^2$ is now transformed to give $y = (x + 3)^2$

Describe fully this single transformation.

[2 marks]

_____

_____

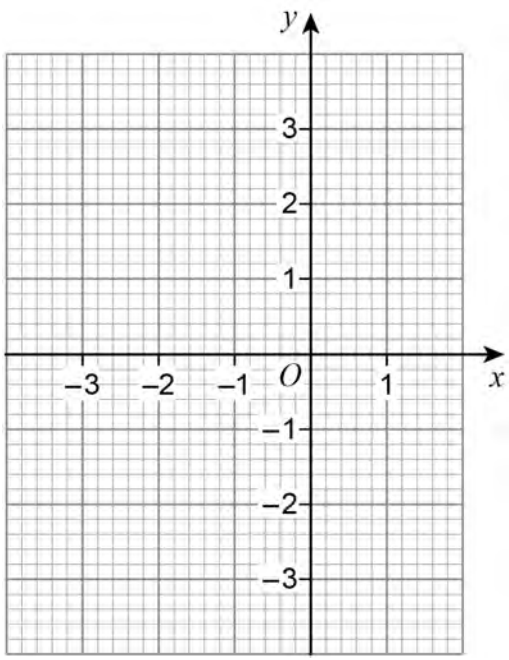
3 (a) Complete the table of values for $y = x^2 + 2x$

[2 marks]

x	–3	–2	–1	0	1
y	3		–1	0	

3 (b) Draw the graph of $y = x^2 + 2x$ for values of x from –3 to 1

[2 marks]



4 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]

$w =$ _____

5 A graph passes through the points (3, 15) and (7, w)

5 (a) Assume that the equation of the graph has the form $y = x^2 + c$

Work out the value of w that this would give.

[3 marks]

$w =$ _____

5 (b) In fact, the graph is a straight line.

What does this mean about the actual value of w?

Tick **one** box.

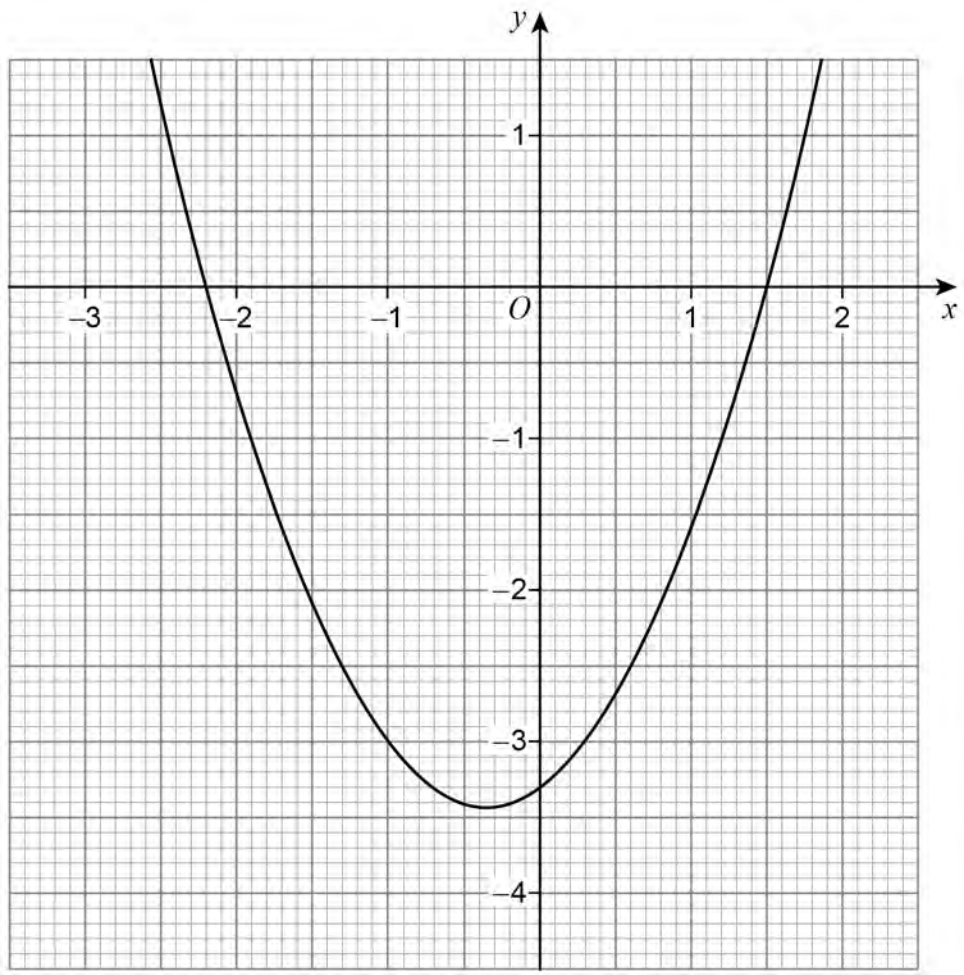
[1 mark]

☐ It must be the same as the value in part (a)

☐ It must be different to the value in part (a)

☐ It is impossible to tell

6 Here is a quadratic graph with equation $y = f(x)$



Write down the roots of the equation $f(x) = 0$

[2 marks]

Answer _____