

Recognising and Sketching Graphs

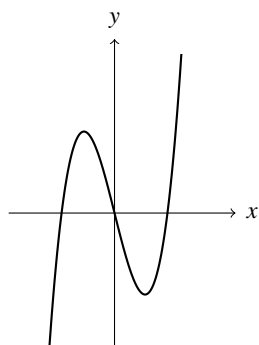
For AQA GCSE Mathematics (8300) • Higher tier

Name _____

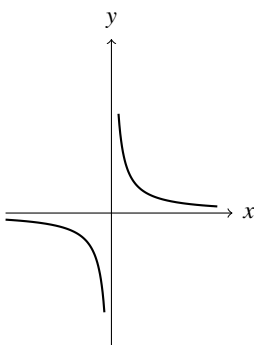
Total marks: **22**

Answer **all** questions in the spaces provided. Show your working: marks are given for correct method.

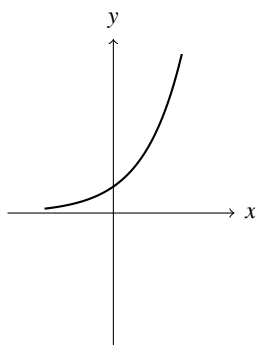
1 Here are four graphs.



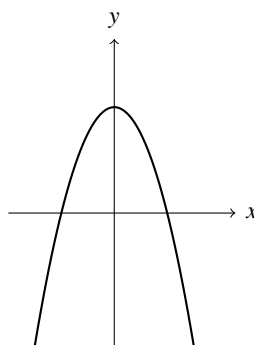
A



B



C



D

Write down the letter of the graph for each equation.

(a) $y = \frac{1}{x}$

[1 mark]

Answer _____

(b) $y = 4 - x^2$

[1 mark]

Answer _____

(c) $y = x^3 - 4x$

[1 mark]

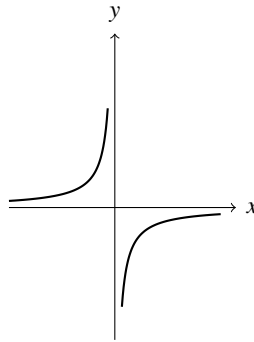
Answer _____

(d) $y = 2^x$

[1 mark]

Answer _____

- 2 (a) Here is the sketch of a graph.



Circle the equation of the graph.

[1 mark]

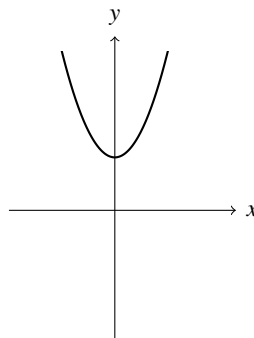
$$y = \frac{1}{x}$$

$$y = -x^3$$

$$y = -\frac{1}{x}$$

$$y = -x$$

- (b) Here is the sketch of a different graph.



Circle the possible equation of the graph.

[1 mark]

$$y = x^2 - 2$$

$$y = (x + 2)^2$$

$$y = x^2 + 2$$

$$y = 2 - x^2$$

- 3 Which of these could be the equation of a graph that passes through $(0, 1)$ and never crosses the x -axis?
Circle your answer.

[1 mark]

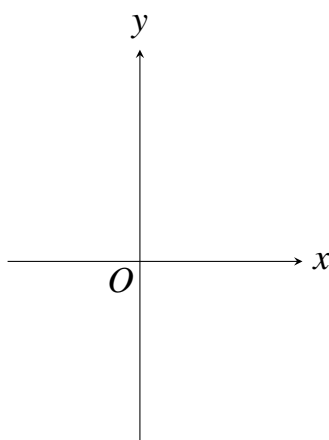
$$y = x^2 - 1$$

$$y = 3^x$$

$$y = \frac{1}{x}$$

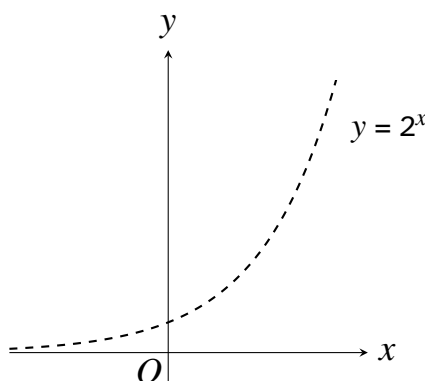
$$y = x^3 + 1$$

- 4 On the axes, sketch the curve $y = x^3 + 1$
Label the coordinates of the points where the curve crosses the x -axis and the y -axis.



[2 marks]

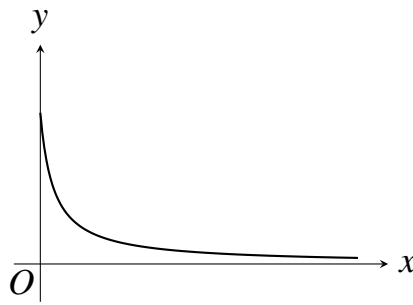
- 5 Here is a sketch of the curve $y = 2^x$



On the same axes, sketch the curve $y = 5^x$

[2 marks]

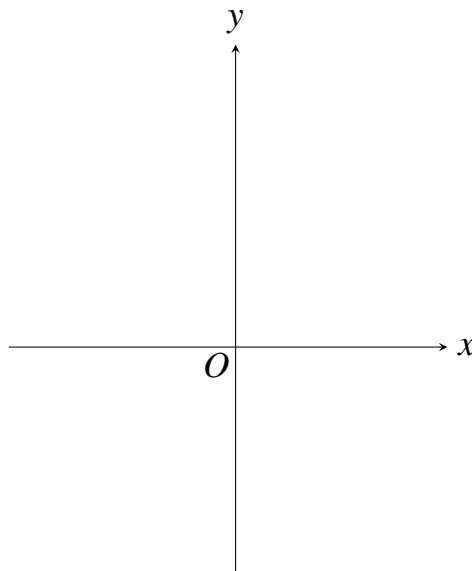
- 6 Ffion sketches the graph of $y = \frac{1}{x}$ for $x > 0$
Here is her sketch.



Make **one** criticism of her sketch.

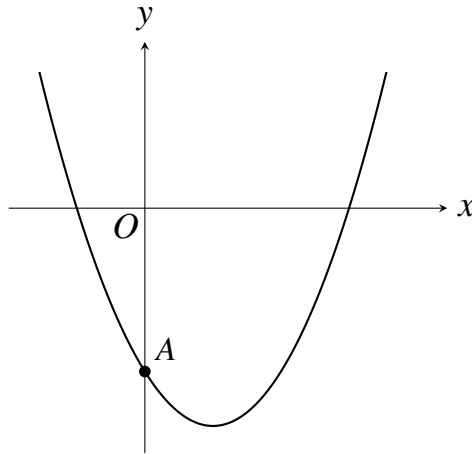
[1 mark]

- 7 Sketch the graph of $y = (x - 1)(x + 3)$
Label the coordinates of the points where the graph meets the axes.



[3 marks]

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



- (a) The curve meets the y -axis at A .
Work out the coordinates of A .

[1 mark]

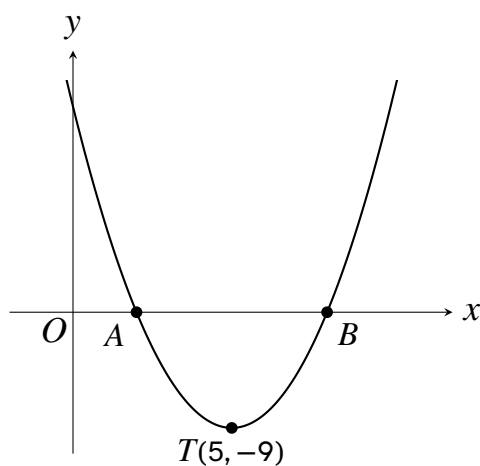
Answer (_____ , _____)

- (b) The line $y = k$ meets the curve at exactly one point.
Work out the value of k .

[2 marks]

Answer _____

- 9 Here is a sketch of $y = x^2 + px + q$
 $T(5, -9)$ is the turning point of the curve.



Not drawn accurately

- (a) Work out the value of p and the value of q .

[2 marks]

$p =$ _____ $q =$ _____

- (b) The curve crosses the x -axis at A and B .
Work out the length AB .

[2 marks]

Answer _____