

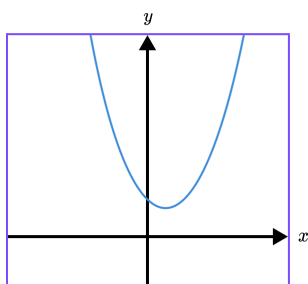
Types of Graphs - Worksheet

Skill

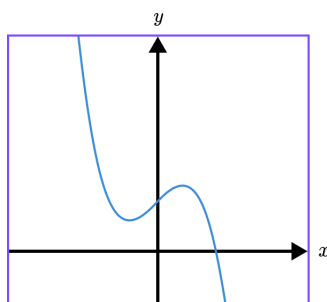
Group A - Linear, Quadratic, Cubic

Identify if the following graphs are linear, quadratic or cubic:

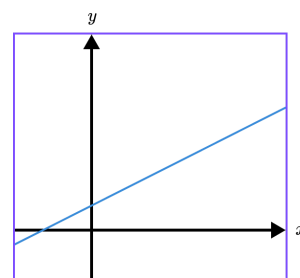
1)



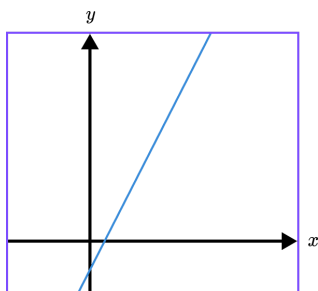
2)



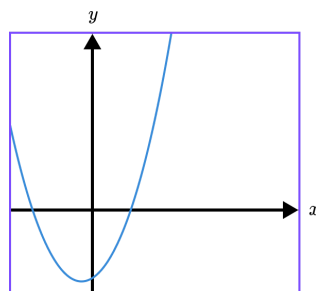
3)



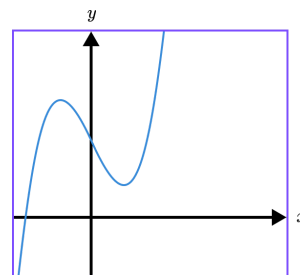
4)



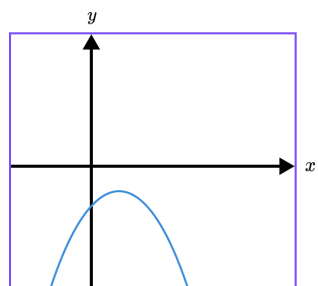
5)



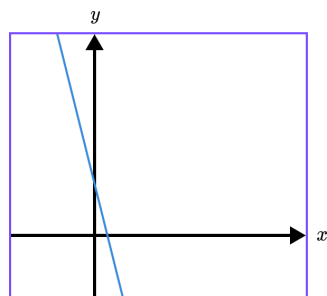
6)



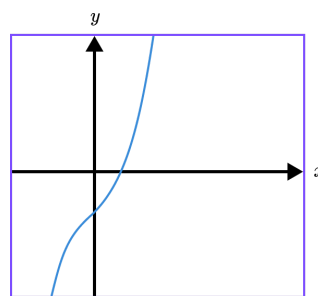
7)



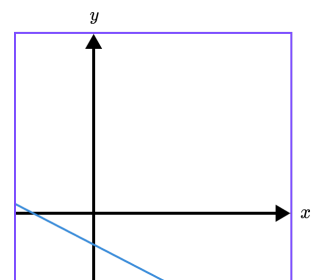
8)



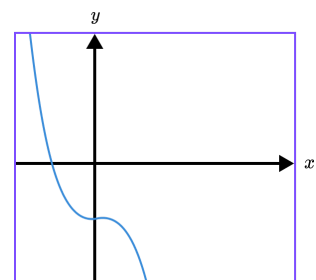
9)



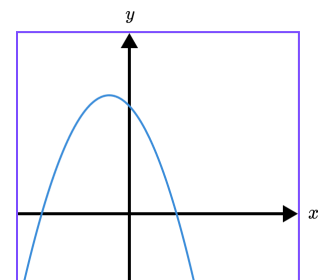
10)



11)



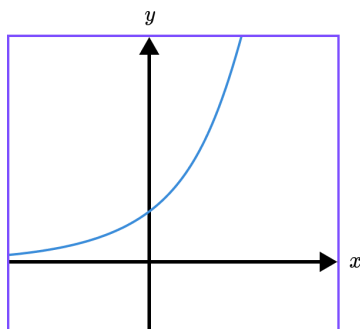
12)



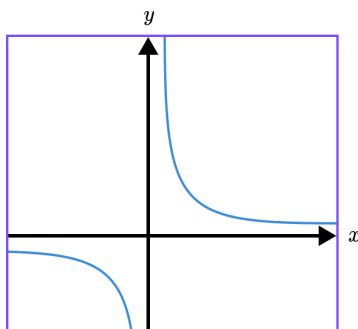
Group B - Reciprocal, Exponential, Circle

Identify if the following graphs are reciprocal, exponential or circle:

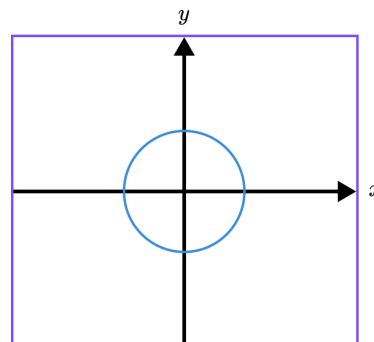
1)



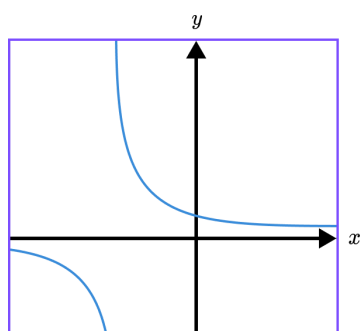
2)



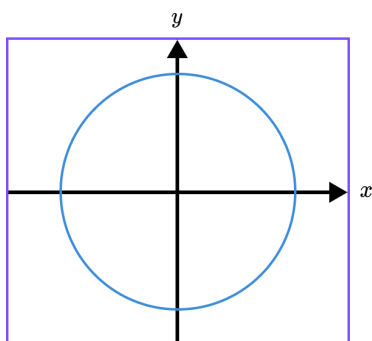
3)



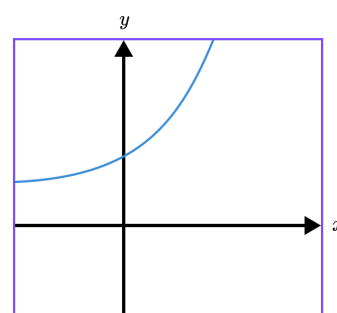
4)



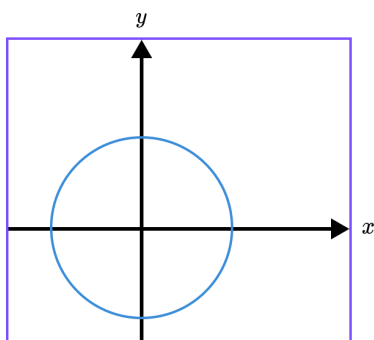
5)



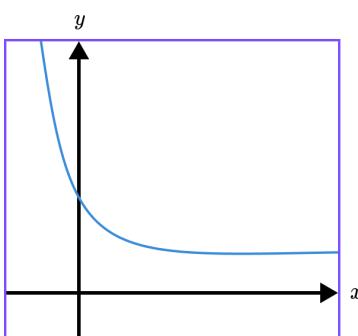
6)



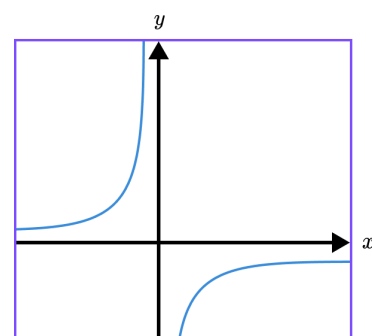
7)



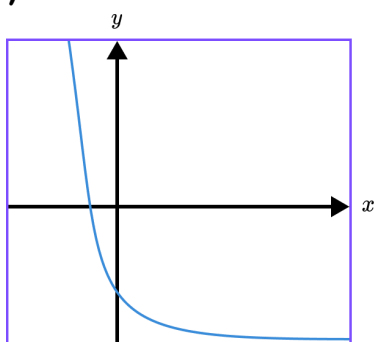
8)



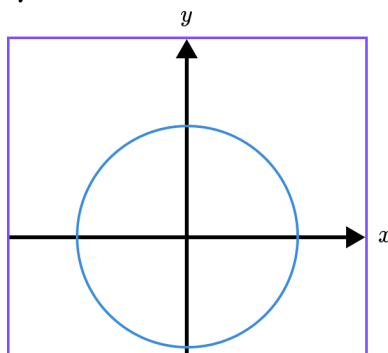
9)



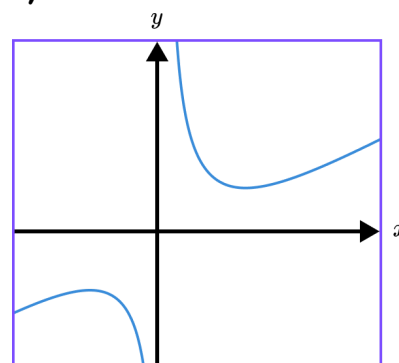
10)



11)



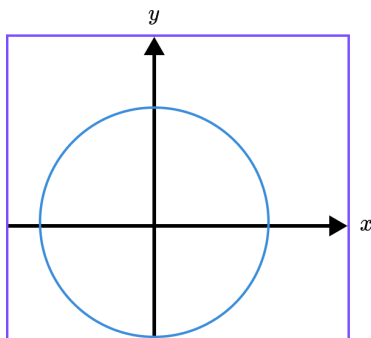
12)



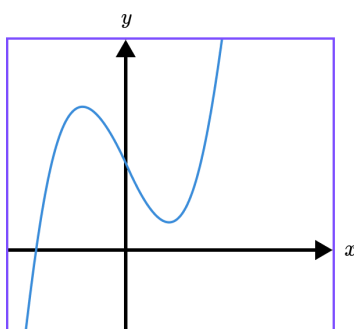
Group C - Cubic, Reciprocal, Exponential, Circle

Identify if the following graphs are cubic, reciprocal, exponential or circle:

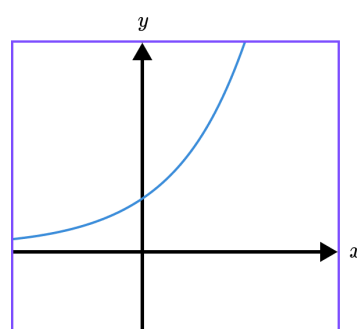
1)



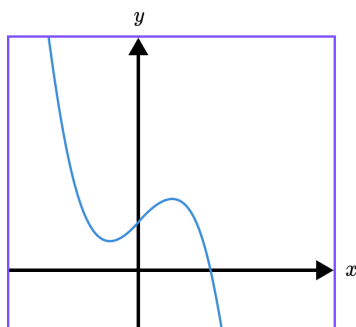
2)



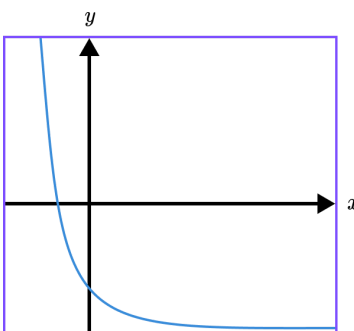
3)



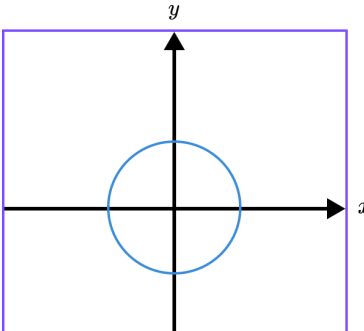
4)



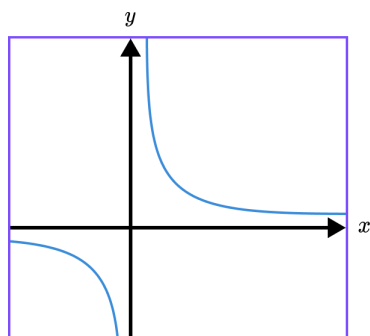
5)



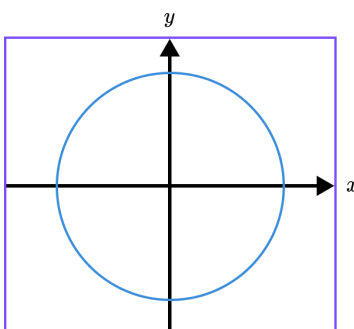
6)



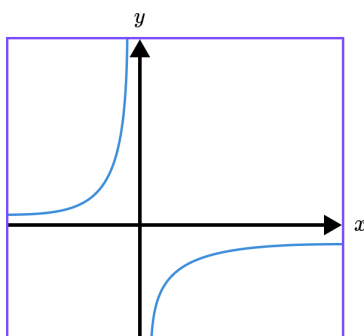
7)



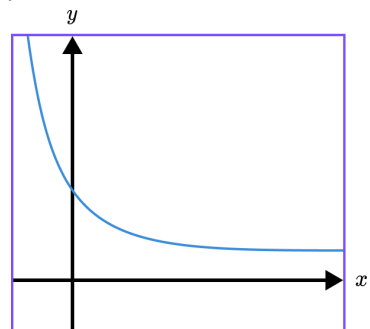
8)



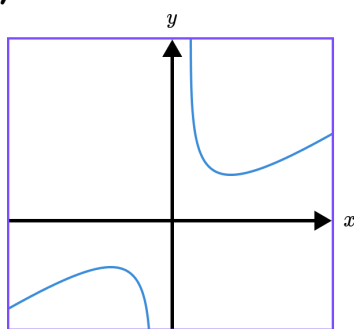
9)



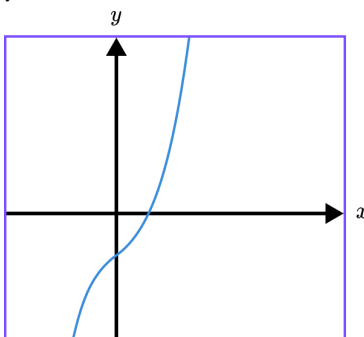
10)



11)



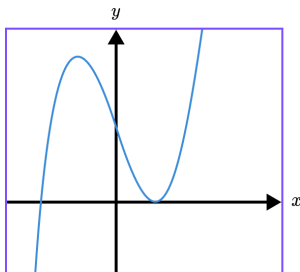
12)



Types of Graphs - Worksheet

Applied

- 1) a) Here is a sketch of the graph of a function:



Identify the equation of the function:

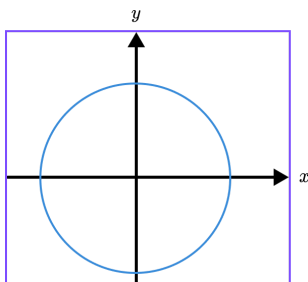
$$y = x^2 + 3x + 2$$

$$y = \frac{3}{x}$$

$$y = x^3 - 3x + 2$$

$$y = 3^x$$

- b) Here is a sketch of the graph of a function:



Identify the equation of the function:

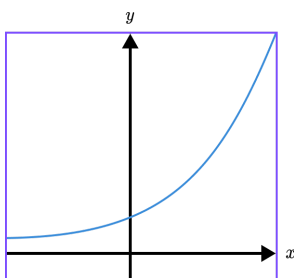
$$y = x^2 + 9$$

$$y = x + 9$$

$$x^2 + y^2 = 9$$

$$y = x^3 + 9$$

- 2) a) Here is a sketch of the graph of a function:



Identify the equation of the function:

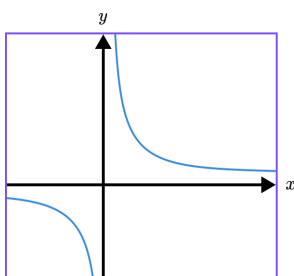
$$y = 2^x$$

$$y = x^2 + 2$$

$$x^2 + y^2 = 2$$

$$y = \frac{2}{x}$$

- b) Here is a sketch of the graph of a function:



Identify the equation of the function:

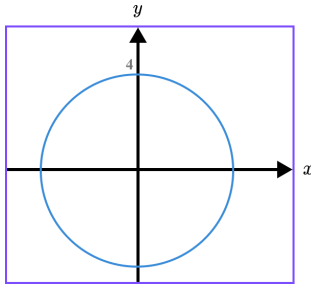
$$y = 5^x$$

$$x^2 + y^2 = 5$$

$$y = x^3 + 5x$$

$$y = \frac{5}{x}$$

- 3) a) Here is a sketch of the graph of a function:



Identify the equation of the function:

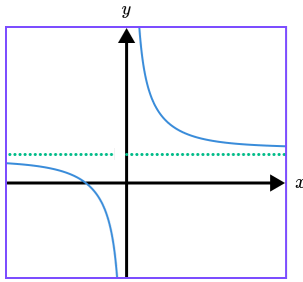
$$x^2 + y^2 = 8$$

$$x^2 + y^2 = 4$$

$$x^2 + y^2 = 16$$

$$x^2 + y^2 = 2$$

- b) Here is a sketch of the graph of a function:



Identify the equation of the function:

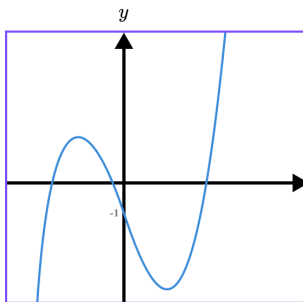
$$y = \frac{1}{x}$$

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

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

$$y = \frac{1}{x} + 5$$

- 4) a) Here is a sketch of the graph of a function:



Identify the equation of the function:

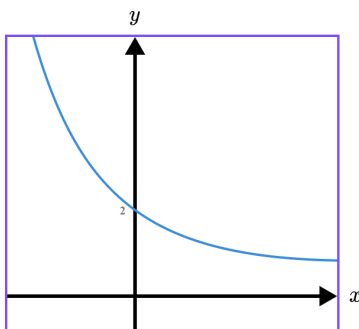
$$y = x^3 + 3x + 1$$

$$y = -x^3 + 3x - 1$$

$$y = -x^3 - 3x + 1$$

$$y = x^3 - 3x - 1$$

- b) Here is a sketch of the graph of a function:



Identify the equation of the function:

$$y = 5^x - 1$$

$$y = 0.5^x + 1$$

$$y = 5^x + 1$$

$$y = 0.5^x - 1$$

Types of Graphs - Exam Questions

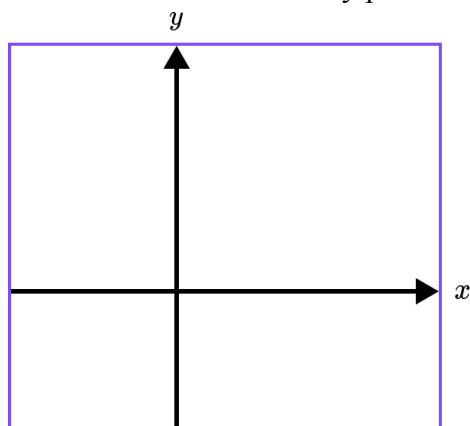
- 1) On the grid, sketch the curve with the equation:

.....

(2 marks)

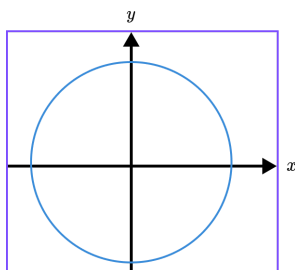
$$y = 4^x$$

Give the coordinates of any points of intersection with the axes.

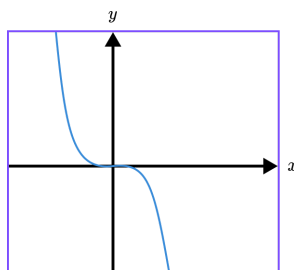


- 2) Here are three graphs

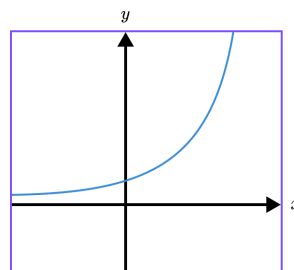
A



B



C



A and

B and

C and

(3 marks)

Here are four equations of graphs:

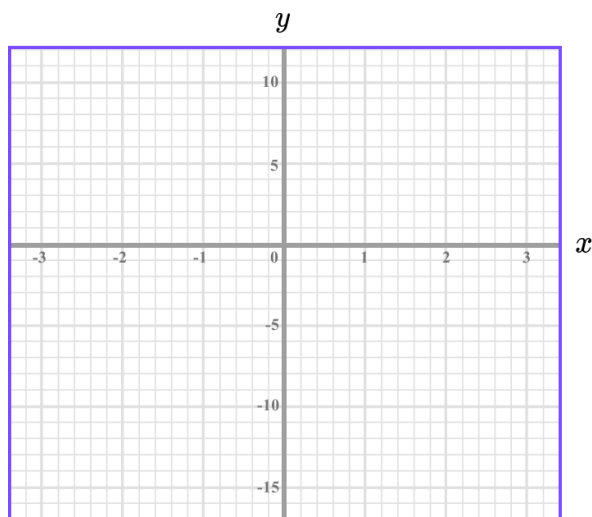
$$y = 2^x \quad x^2 + y^2 = 1 \quad y = 1 - x^2 \quad y = -x^3$$

Match each graph to the correct equation

- 3) (a) Complete the table of values for $y = x^3 - 5x - 3$
(2)

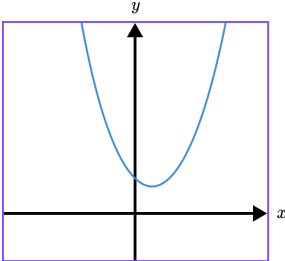
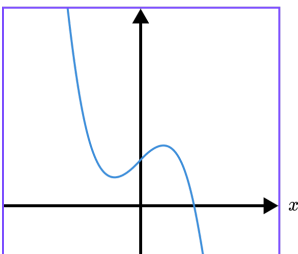
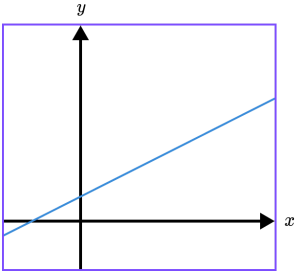
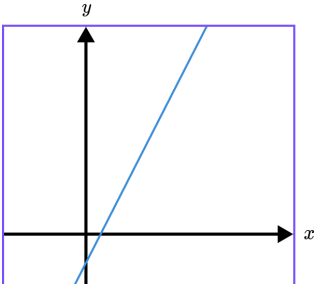
x	-3	-2	-1	0	1	2	3
y	-15	-1			-7		9

- (b) On the grid, draw the graph of $y = x^3 - 5x - 3$ for $-3 \leq x \leq 3$
(2)

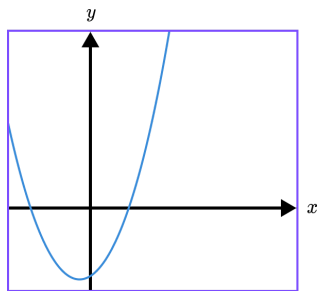


- (c) Use the graph to find an approximate solution for $x^3 - 5x - 3 = 5$
(1)
(5 marks)

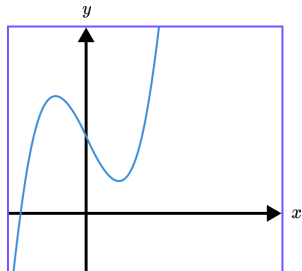
Types of Graphs - Answers

	Question	Answer
Group A	Skill Questions	
	<p>Identify if the following graphs are linear, quadratic or cubic:</p> <p>1)</p>  <p>2)</p>  <p>3)</p>  <p>4)</p> 	<p>1) Quadratic</p> <p>2) Cubic</p> <p>3) Linear</p> <p>4) Linear</p>

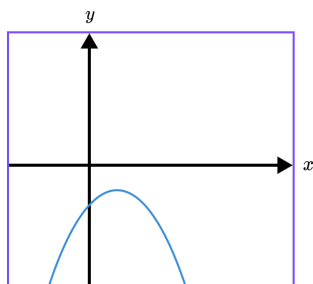
5)



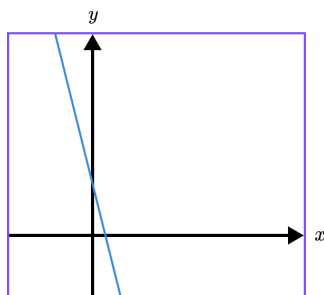
6)



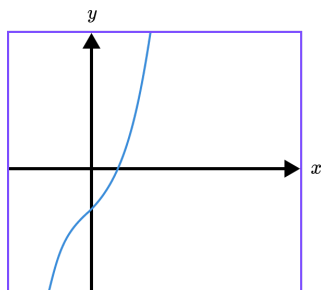
7)



8)



9)



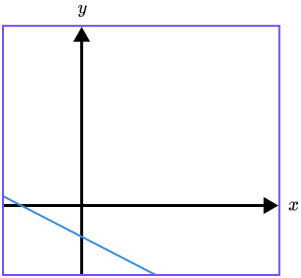
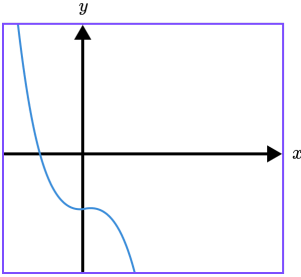
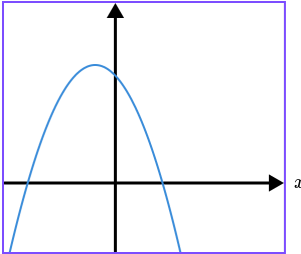
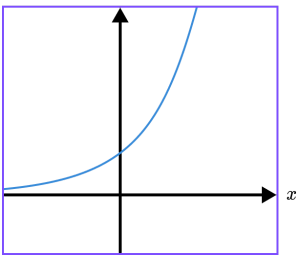
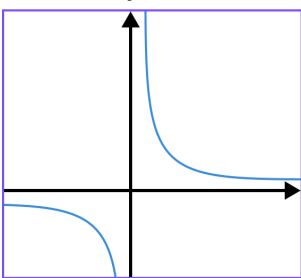
5) Quadratic

6) Cubic

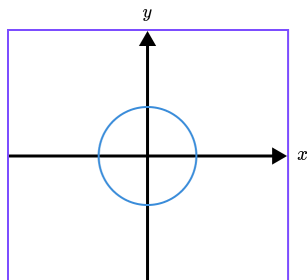
7) Quadratic

8) Linear

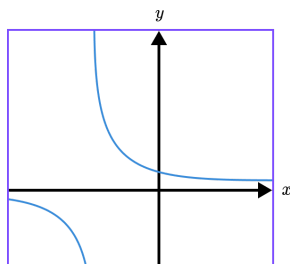
9) Cubic

	<p>10)</p>  <p>11)</p>  <p>12)</p> 	<p>10) Linear</p> <p>11) Cubic</p> <p>12) Quadratic</p>
<p>Group B</p>	<p>Identify if the following graphs are reciprocal, exponential or circle:</p> <p>1)</p>  <p>2)</p> 	<p>1) Exponential</p> <p>2) Reciprocal</p>

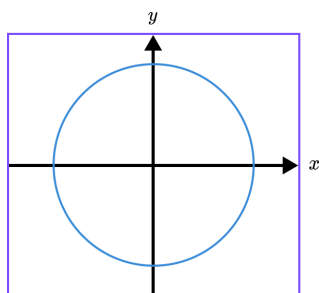
3)



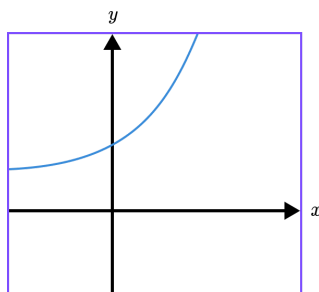
4)



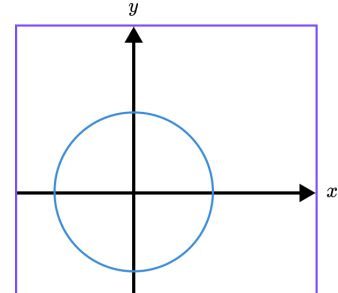
5)



6)



7)



3) Circle

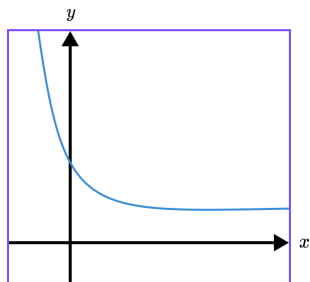
4) Reciprocal

5) Circle

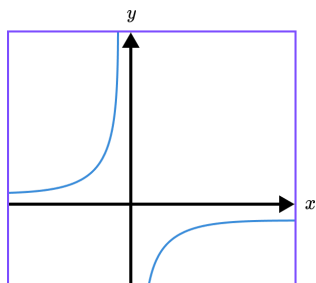
6) Exponential

7) Circle

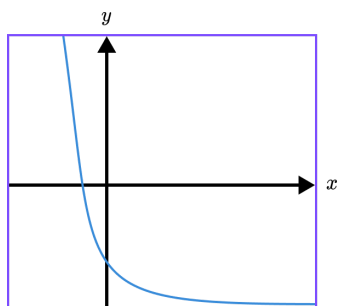
8)



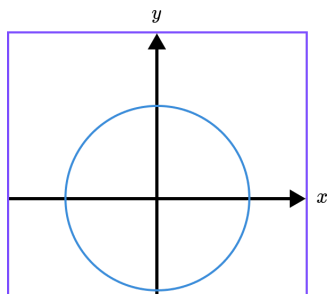
9)



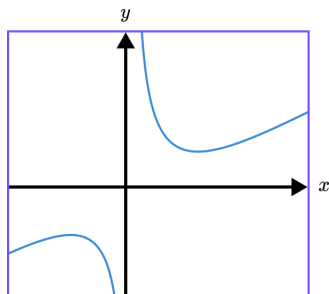
10)



11)



12)



8) Exponential

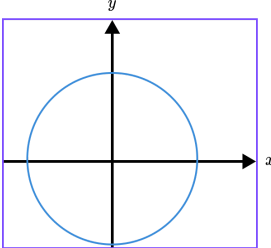
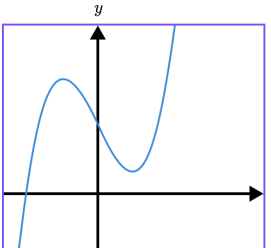
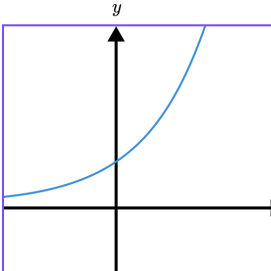
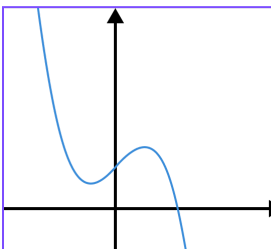
9) Reciprocal

10) Exponential

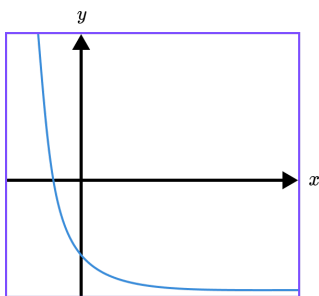
11) Circle

12) Reciprocal

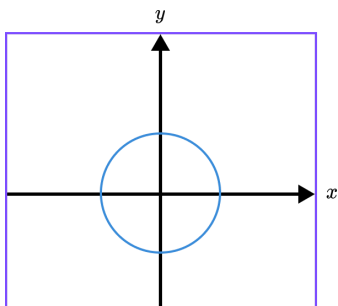
Types of Graphs - Answers

	Question	Answer
Group C	Skill Questions	
	<p>Identify if the following graphs are cubic, reciprocal, exponential or circle:</p> <p>1)</p>  <p>2)</p>  <p>3)</p>  <p>4)</p> 	<p>1) Circle</p> <p>2) Cubic</p> <p>3) Exponential</p> <p>4) Cubic</p>

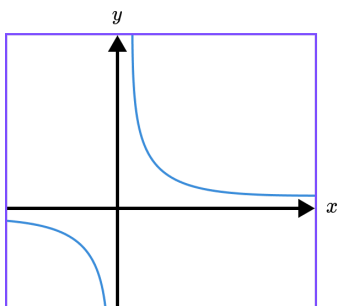
5)



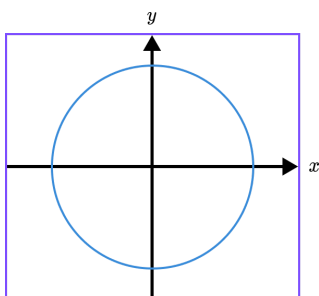
6)



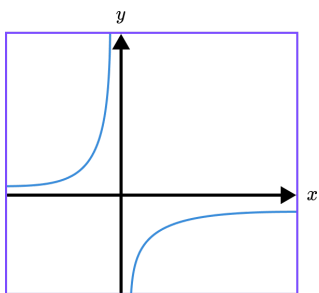
7)



8)



9)



5) Exponential

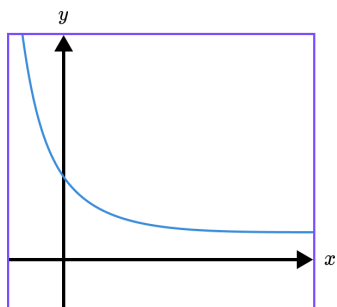
6) Circle

7) Reciprocal

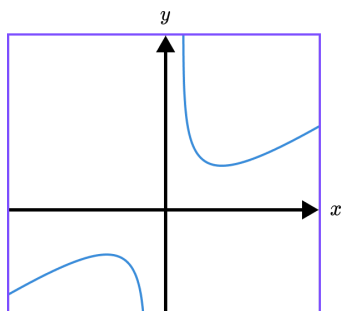
8) Circle

9) Reciprocal

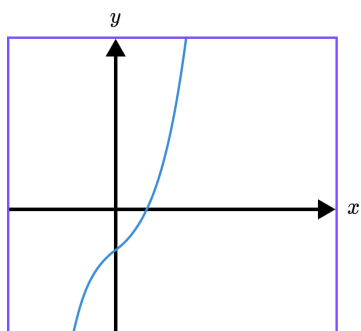
10)



11)



12)

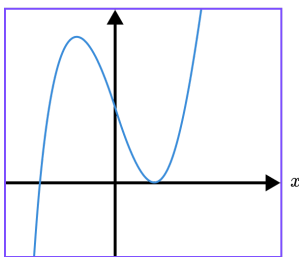
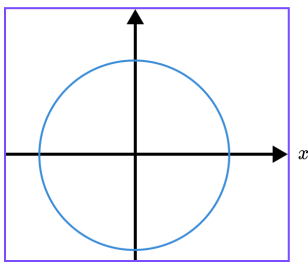


10) Exponential

11) Reciprocal

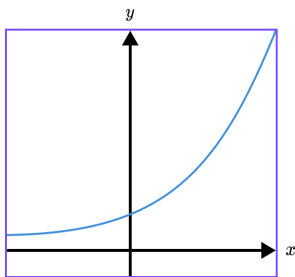
12) Cubic

Types of Graphs - Answers

	Question	Answer
	Applied Questions	
1)	<p>a) Here is a sketch of the graph of a function:</p>  <p>Identify the equation of the function:</p> <p> $y = x^2 + 3x + 2$ $y = \frac{3}{x}$ $y = x^3 - 3x + 2$ $y = 3^x$ </p> <p>b) Here is a sketch of the graph of a function:</p>  <p>Identify the equation of the function:</p> <p> $y = x^2 + 9$ $y = x + 9$ $x^2 + y^2 = 9$ $y = x^3 + 9$ </p>	<p>a) $y = x^3 - 3x + 2$</p> <p>b) $x^2 + y^2 = 9$</p>

2)

a) Here is a sketch of the graph of a function:



Identify the equation of the function:

$$y = 2^x$$

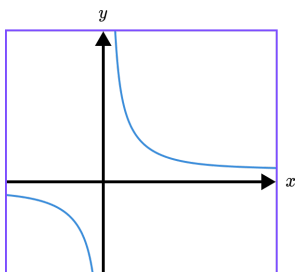
$$y = x^2 + 2$$

$$x^2 + y^2 = 2$$

$$y = \frac{2}{x}$$

a) $y = 2^x$

b) Here is a sketch of the graph of a function:



Identify the equation of the function:

$$y = 5^x$$

$$x^2 + y^2 = 5$$

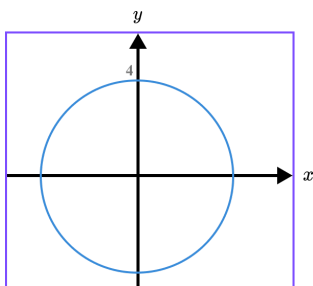
$$y = x^3 + 5x$$

$$y = \frac{5}{x}$$

b) $y = \frac{5}{x}$

3)

a) Here is a sketch of the graph of a function:



Identify the equation of the function:

$$x^2 + y^2 = 8$$

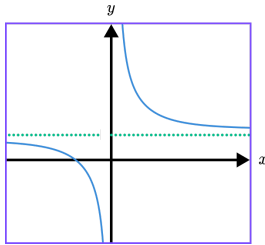
$$x^2 + y^2 = 4$$

$$x^2 + y^2 = 16$$

$$x^2 + y^2 = 2$$

a) $x^2 + y^2 = 16$

b) Here is a sketch of the graph of a function:



Identify the equation of the function:

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

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

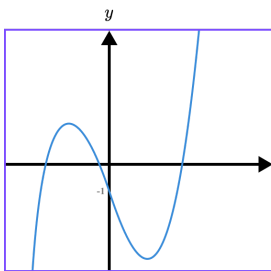
$$y = -\frac{1}{x}$$

$$y = \frac{1}{x} + 5$$

b) $y = \frac{1}{x} + 1$

4)

a) Here is a sketch of the graph of a function:



Identify the equation of the function:

$$y = x^3 + 3x + 1$$

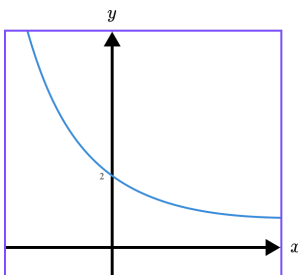
$$y = -x^3 + 3x - 1$$

$$y = -x^3 - 3x + 1$$

$$y = x^3 - 3x - 1$$

b)

Here is a sketch of the graph of a function:



Identify the equation of the function:

$$y = 5^x - 1$$

$$y = 0.5^x + 1$$

$$y = 5^x + 1$$

$$y = 0.5^x - 1$$

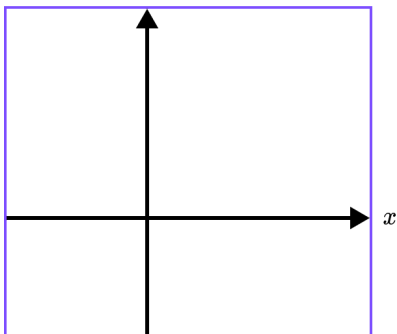
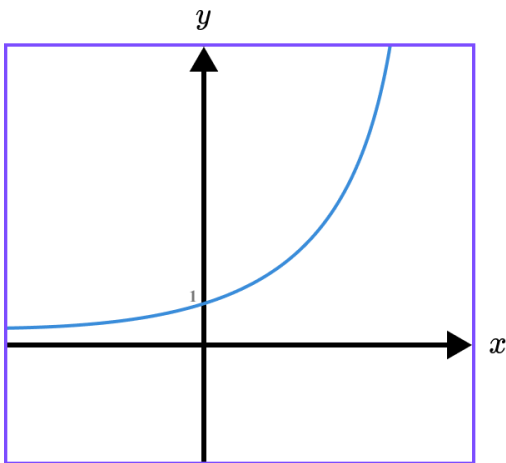
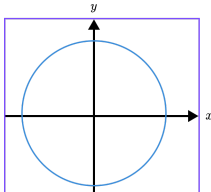
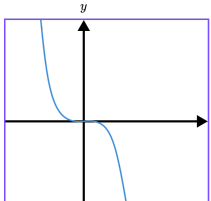
a)

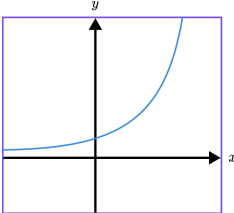
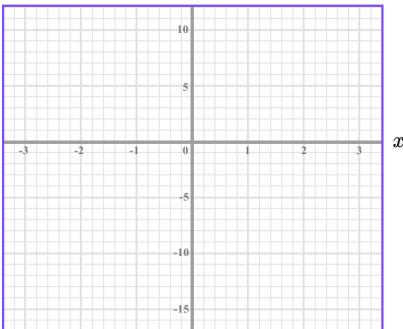
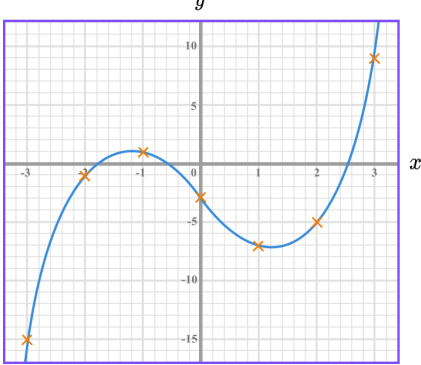
$$y = x^3 - 3x - 1$$

b)

$$y = 0.5^x + 1$$

Types of Graphs - Mark Scheme

	Question	Answer
	Exam Questions	
1)	<p>On the grid, sketch the curve with the equation:</p> $y = 4^x$ <p>Give the coordinates of any points of intersection with the axes.</p> 	<p>(2)</p>  <p>for drawing a growth curve (1) for the y-intercept (0,1) (1)</p>
2)	<p>Here are three graphs</p> <p>A</p>  <p>B</p> 	<p>(3)</p>

	<p>C</p>  <p>Here are four equations of graphs: $y = 2^x$ $x^2 + y^2 = 1$ $y = 1 - x^2$ $y = -x^3$ Match each graph to the correct equation</p>	<p>A and $x^2 + y^2 = 1$ for A correct (1)</p> <p>B and $y = -x^3$ for B correct (1)</p> <p>C and $y = 2^x$ for C correct (1)</p>																	
3) (a)	<p>Complete the table of values for $y = x^3 - 5x - 3$</p> <table border="1" data-bbox="255 732 740 844"><tr><td>x</td><td>-3</td><td>-2</td><td>-1</td><td>0</td><td>1</td><td>2</td><td>3</td></tr><tr><td>y</td><td>-15</td><td>-1</td><td></td><td></td><td>-7</td><td></td><td>9</td></tr></table>	x	-3	-2	-1	0	1	2	3	y	-15	-1			-7		9	<p>(a) Correct Values are: 1 -3 and -5</p> <p>For 1 correct y-values (1) For all correct y-values (1)</p>	(2)
x	-3	-2	-1	0	1	2	3												
y	-15	-1			-7		9												
(b)	<p>On the grid, draw the graph of $y = x^3 - 5x - 3$ for $-3 \leq x \leq 3$</p> 	<p>(b)</p>  <p>for plotting the points correctly (1) for the smooth curve (1)</p>	(2)																
(c)	<p>Use the graph to find an approximate solution for $x^3 - 5x - 3 = 5$</p>	<p>(c) $x = 2.8$ for the correct answer (1)</p>	(1)																

Do you have KS4 students who need additional support in maths?

Our specialist tutors will help them develop the skills they need to succeed at GCSE in weekly one to one online revision lessons. Trusted by secondary schools across the UK.

Visit thirdspacelearning.com to find out more.