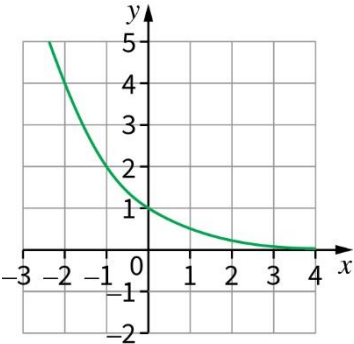


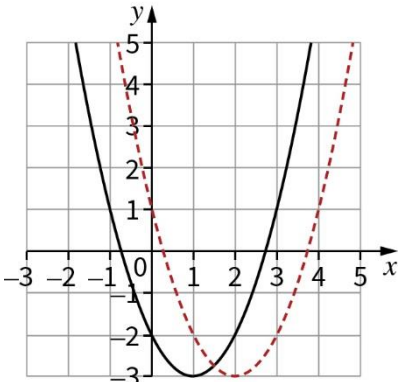
Oxford Revise | Edexcel GCSE Maths Higher | Answers

Chapter 13 Cubic graphs, reciprocal graphs, exponential graphs, transformation of graphs

Question	Answer	Extra information	Marks
13.1 (a)	The inverse of $f(x)$ is written as $f^{-1}(x)$, but this does not mean “1 over $f(x)$ ”. The “-1” superscript on the function $f(x)$ means the function that “undoes” $f(x)$; it is not used like a power or exponent.		1
13.1 (b)	$y = \frac{1-x}{2x+4}$ Swap x and y and then solve for y : $x = \frac{1-y}{2y+4}$ $2xy + 4x = 1 - y$ $2xy + y = 1 - 4x$ $y(2x+1) = 1 - 4x$ $y = \frac{1-4x}{2x+1}$	Swap x and y Rearrange algebraically Correct answer	1 1 1

Question	Answer	Extra information	Marks
13.2	$y = ab^x$ $10 = ab^1$ $0.4 = ab^{-1}$ Divide to eliminate a : $\frac{10}{0.4} = \frac{b}{b^{-1}}$ $25 = b^2$ $b = 5$ Use one point and $b = 5$ to find a : $10 = a \times 5^1$ $a = 2$	Set up equations and eliminate a Solve for b Solve for a	1 1 1
13.3	A = Reciprocal B = Cubic C = Exponential D is Trigonometric	1 mark for two correct 2 marks for all correct	1 1
13.4	Exponential curve sketched passing through (0, 1) Correctly shown to approach but never equal 0 as $x \rightarrow -\infty$	1 mark for point at (0, 1), labelled as such 1 mark for $y = 0$ asymptote 1 mark for correct shape as x gets large	1 1 1
13.5	(5, 10)	1 mark for x or y correct, as long as work shows how it was calculated	1 1
13.6	Quadratic curve sketched that clearly shows the graph of $f(x)$ being compressed in the x direction. Turning point remains where $x = -4$		2
13.7	$y = -f(x)$		1

Question	Answer	Extra information	Marks
13.8		<p>General shape correct Passing through (0, 1) Approaching, but not definitely <i>not</i> touching, the x-axis as x increases</p>	<p>1 1 1</p>
13.9 (a)	<p>$y = x^2 - 4x + 1$ Complete the square: $y = (x - 2)^2 - 4 + 1$ $= (x - 2)^2 - 3$ Minimum point on the curve occurs when $x = 2$, which is at $(2, -3)$</p>	<p>Attempting to complete the square Correct answer</p>	<p>1 1</p>

Question	Answer	Extra information	Marks
13.9 (b)	<p>The graph is a translation of the function by 1 unit to the left.</p>  <p>Minimum point co-ordinates (1, -3)</p>	Correct translation of 1 unit to the left	1

