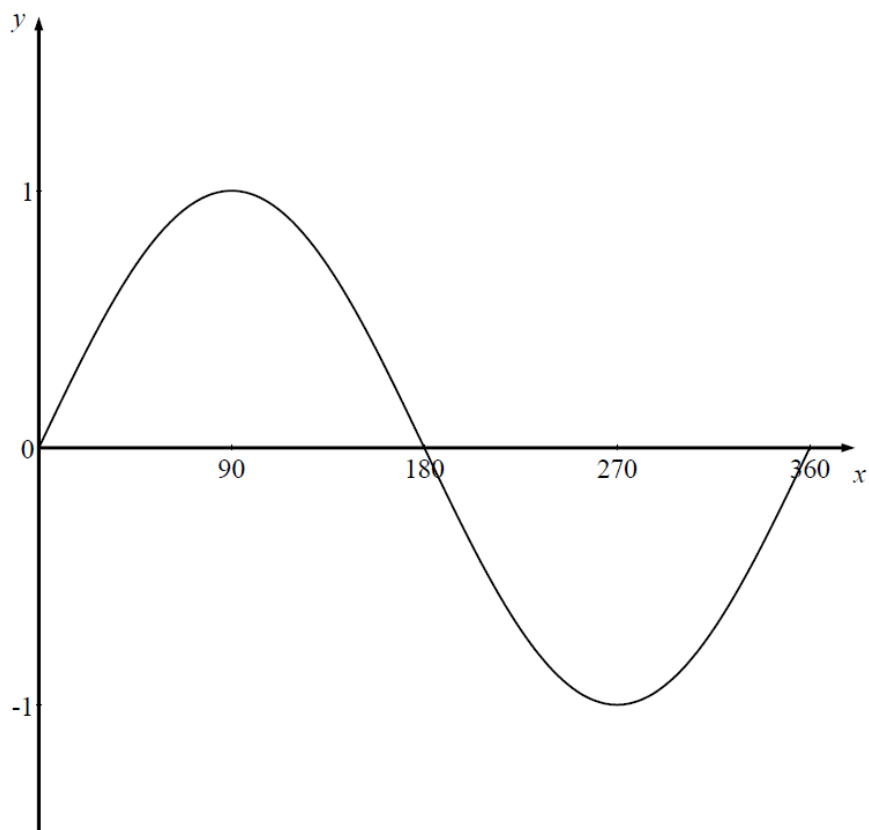
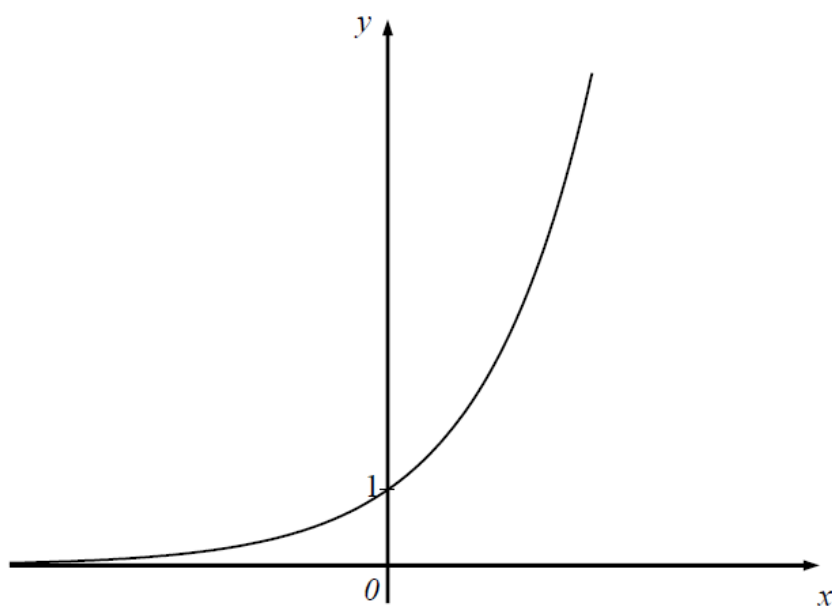


Level 3 Algebra – Graphs - Sketching - Answers

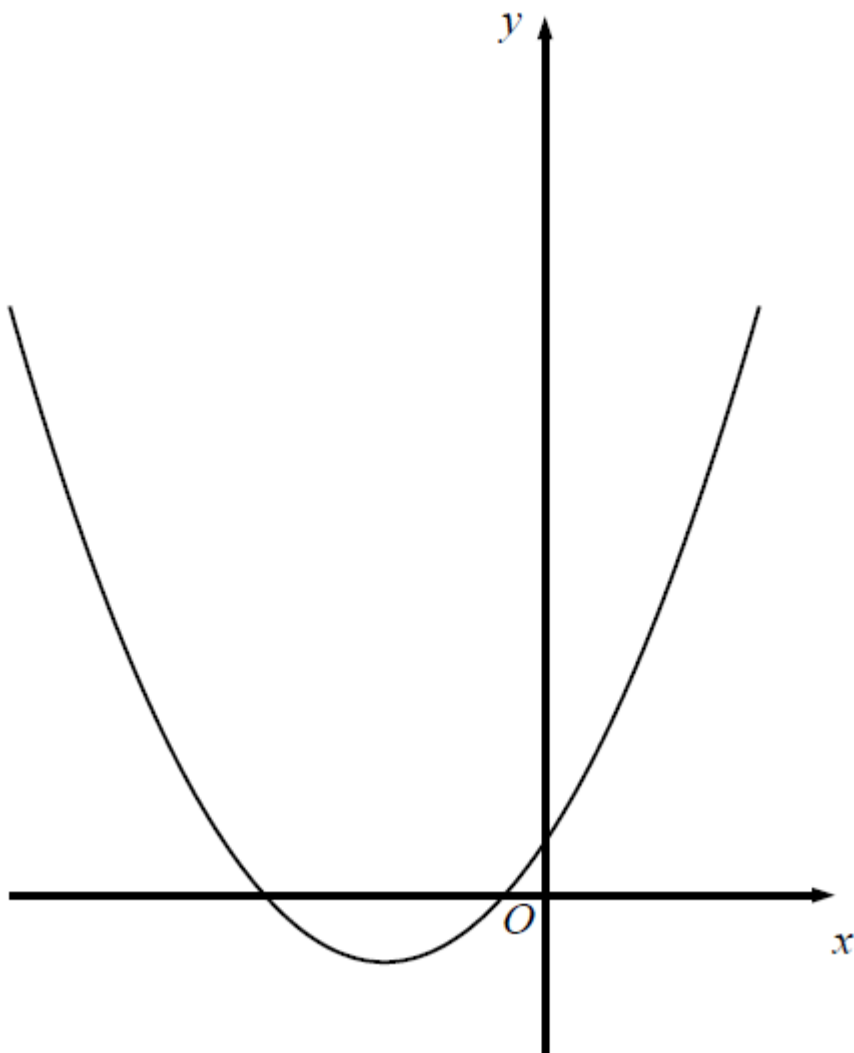
June 2013 - Question 10

10	(a)		correct sketch	2	M1 for correct shape in interval $0 \leq x \leq 360$ A1 fully correct sketch with 1 and -1 marked on y axis
	(b)		correct sketch	2	M1 for correct shape A1 fully correct sketch with (0, 1) marked as y intercept

10(a)**10(b)**

Jan 2014 - Question 12

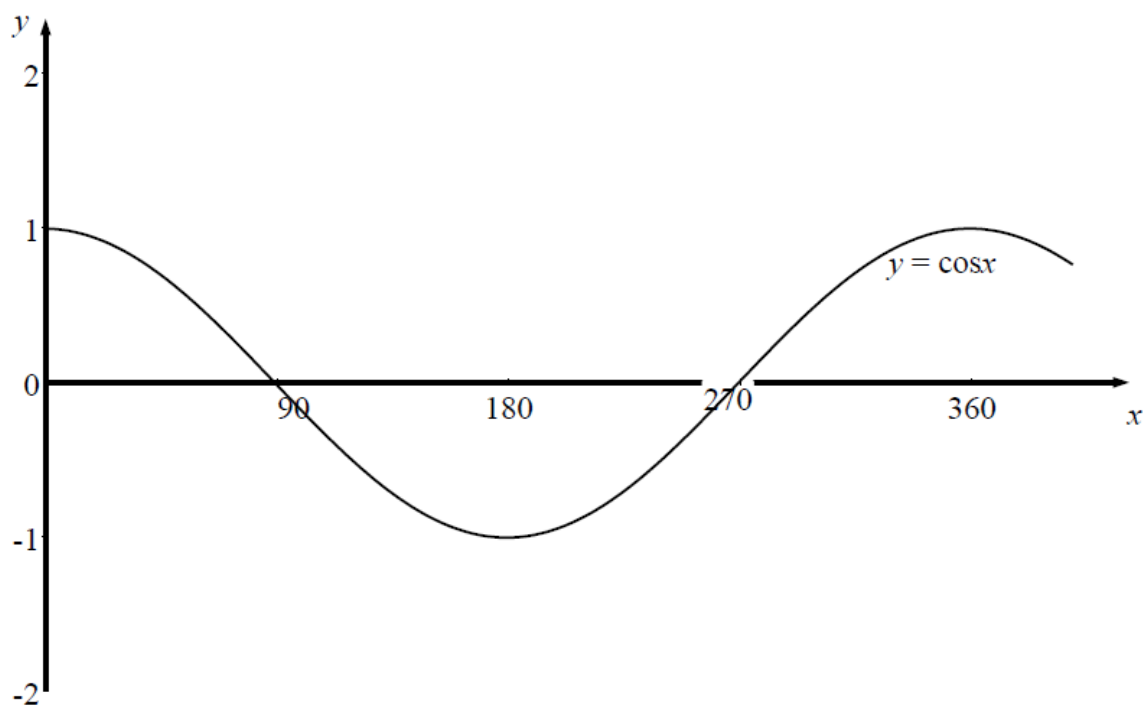
12	(a)	$(x + \frac{3}{2})^2 - \frac{9}{4} + 1$	$(x + \frac{3}{2})^2 - \frac{5}{4}$	2	M1 for $(x + \frac{3}{2})^2$ oe A1 for $(x + \frac{3}{2})^2 - \frac{5}{4}$ oe
	(b)	When $x = 0, y = 1$	Sketch graph	3	B1 for general shape (parabola) B1 for minimum point in third quadrant B1 for y intercept labelled at (0, 1)
	(c)		$(-\frac{3}{2}, -\frac{5}{4})$	1	B1 cao



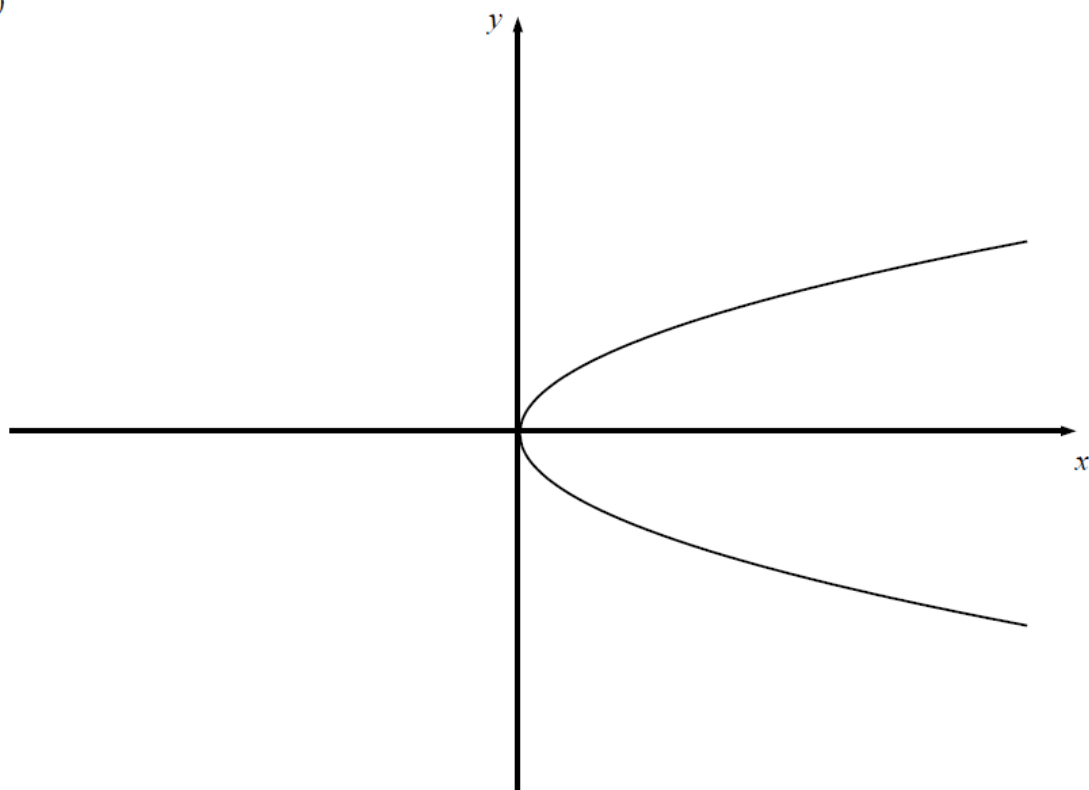
Jan 2015 - Question 10

Question	Working	Answer	Mark	Notes
10	(a)	correct sketch	2	M1 for correct shape in interval $0 \leq x \leq 360$ A1 fully correct sketch with 1 and -1 marked on y-axis
	(b)	correct sketch	2	M1 for parabola with correct orientation or sketch of $y = \sqrt{x}$ or sketch of $y = -\sqrt{x}$ A1 fully correct sketch with vertex at (0, 0)
	(c)	Circle, centre (0, 0), radius 1	1	B1 for correct sketch

10(a)



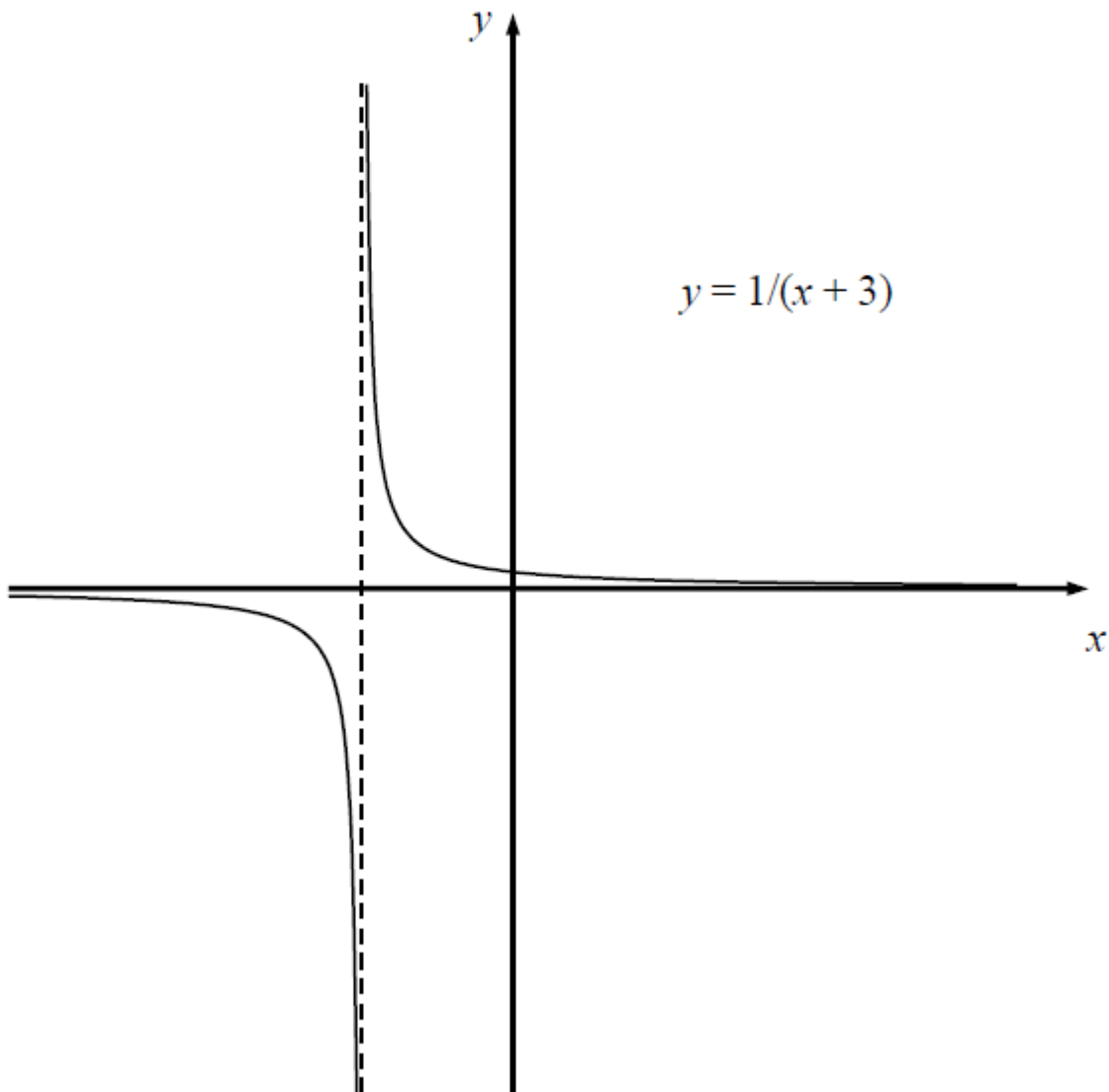
10(b)



June 2015 - Question 5

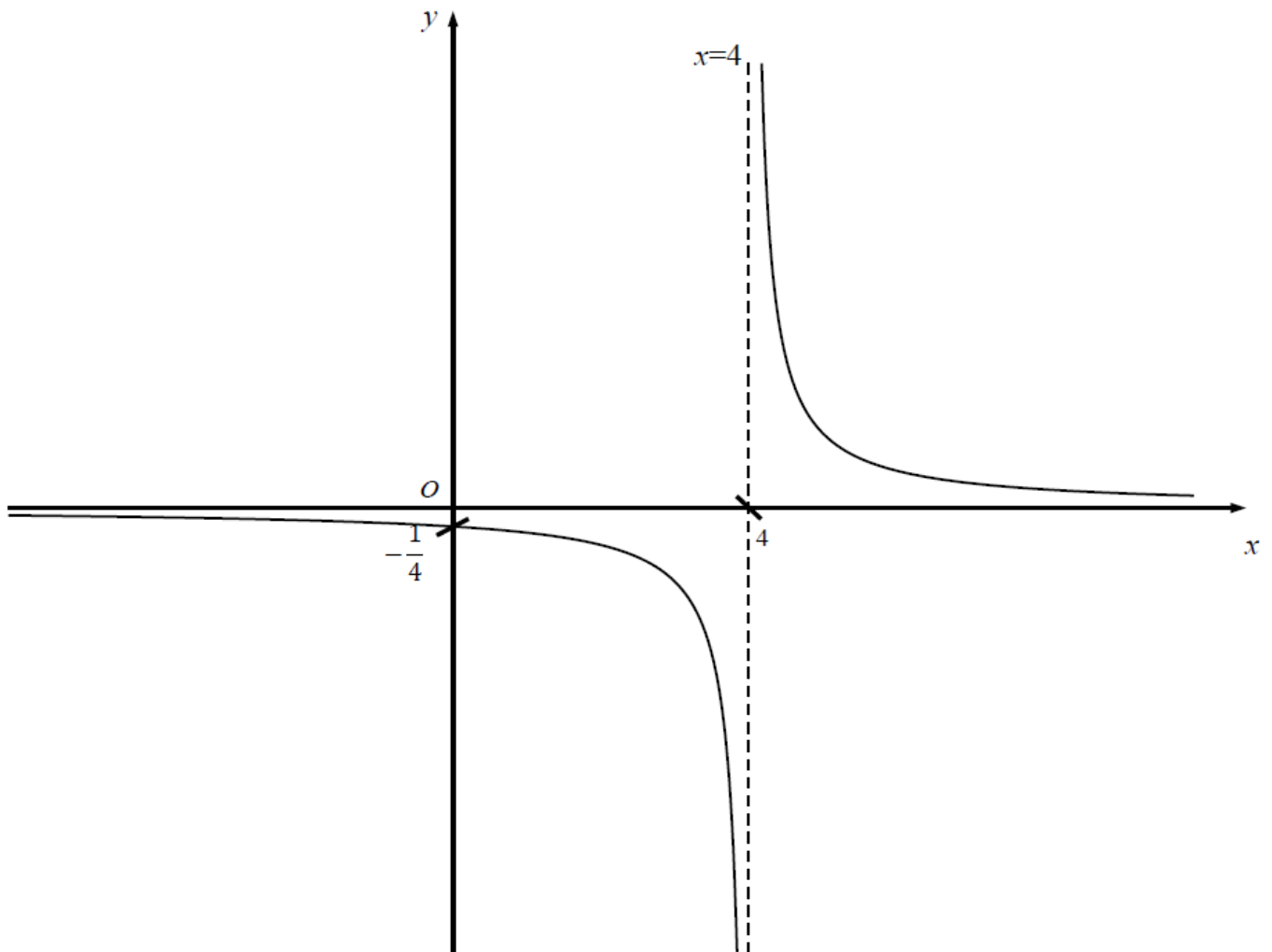
5	(a)		$(0, \frac{1}{3})$	1	B1 cao
	(b)		$y = 0$ $x = -3$	2	B2 for both correct equations (B1 for one correct equation)
	(c)		Curve sketched	2	B2 for both branches drawn correctly (B1 only one branch drawn correctly or correct general shape with 2 branches)

Question 5c



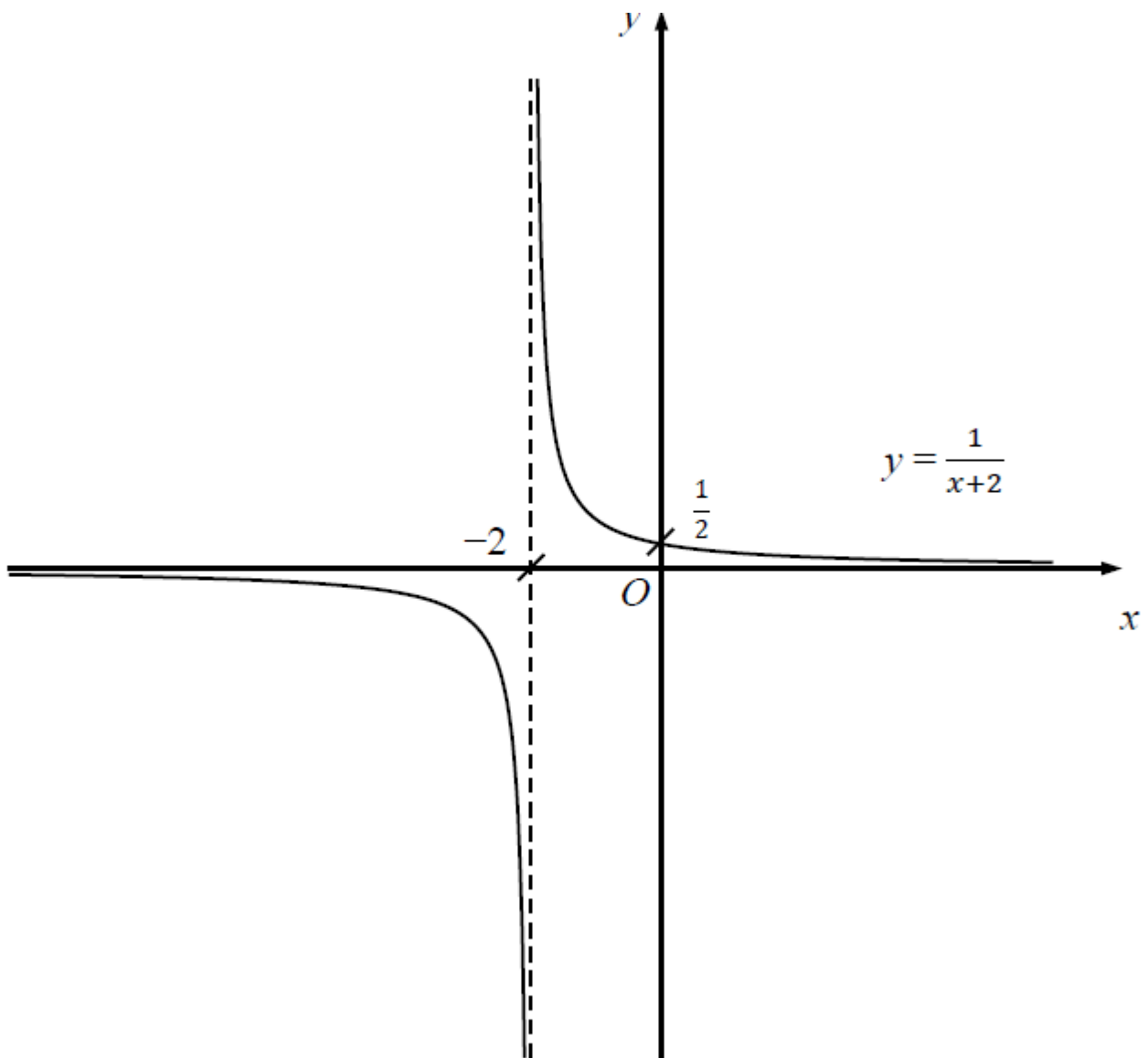
Jan 2016 - Question 17

17		correct graph	4	B1 for asymptote of $x = 4$ B1 for y intercept at $(0, -\frac{1}{4})$ M1 for correct shape A1 for fully correct graph
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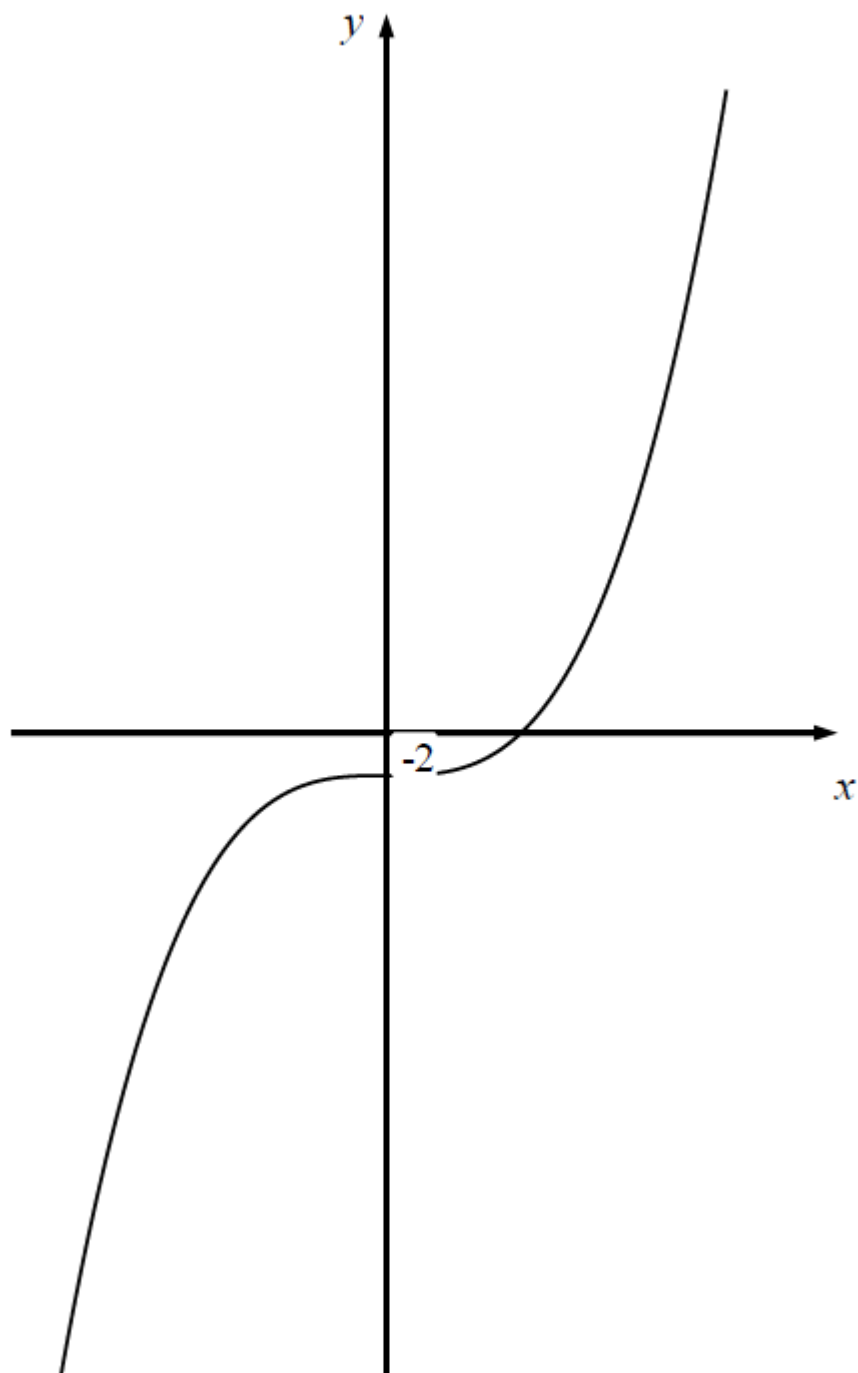
June 2016 - Question 19

19		Graph drawn	4	B1 for asymptote of $x = -2$ B1 for intercept at $(0, \frac{1}{2})$ M1 for correct shape A1 for fully correct graph.
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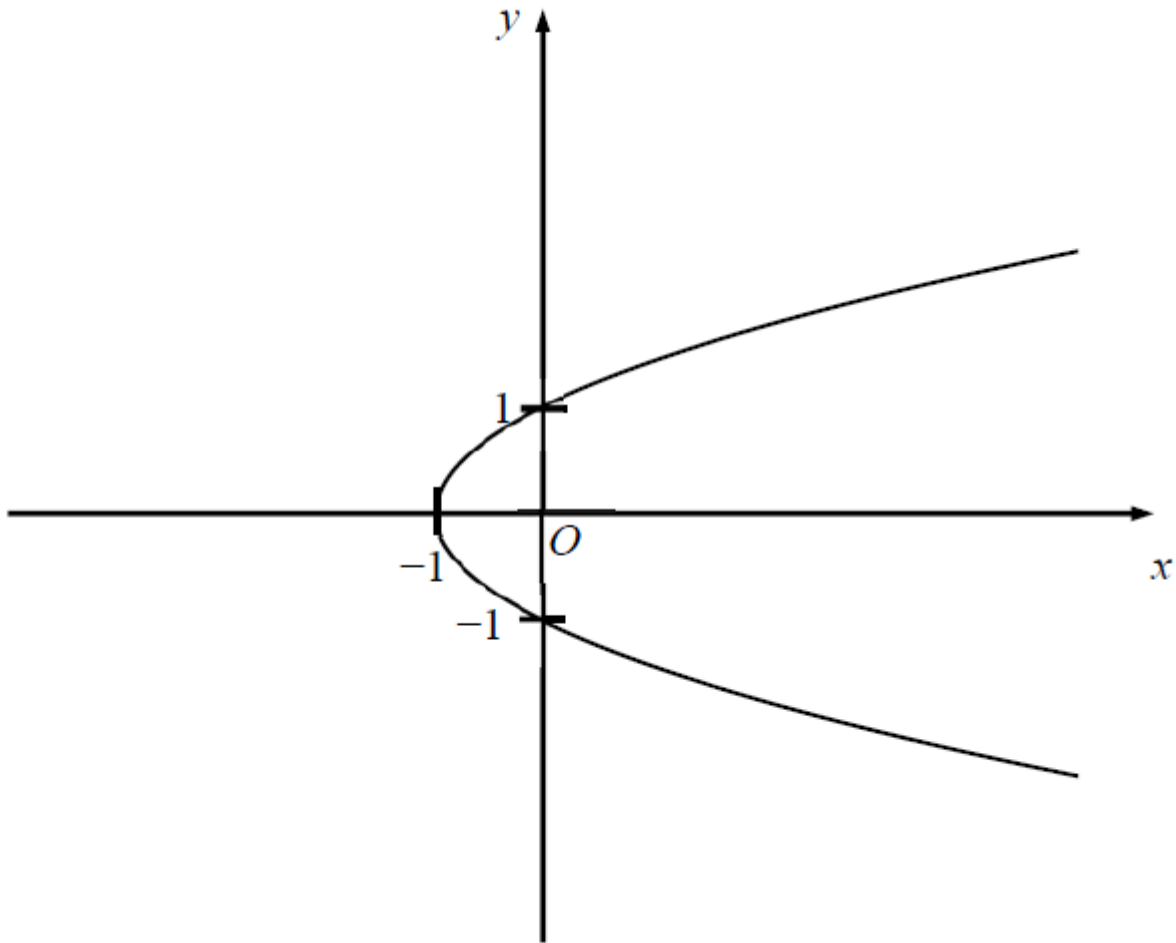
Jan 2017 - Question 14

14		Graph sketch	3	M1 for correct shape M1 for -2 labelled as y intercept A1 fully correct graph drawn with labels
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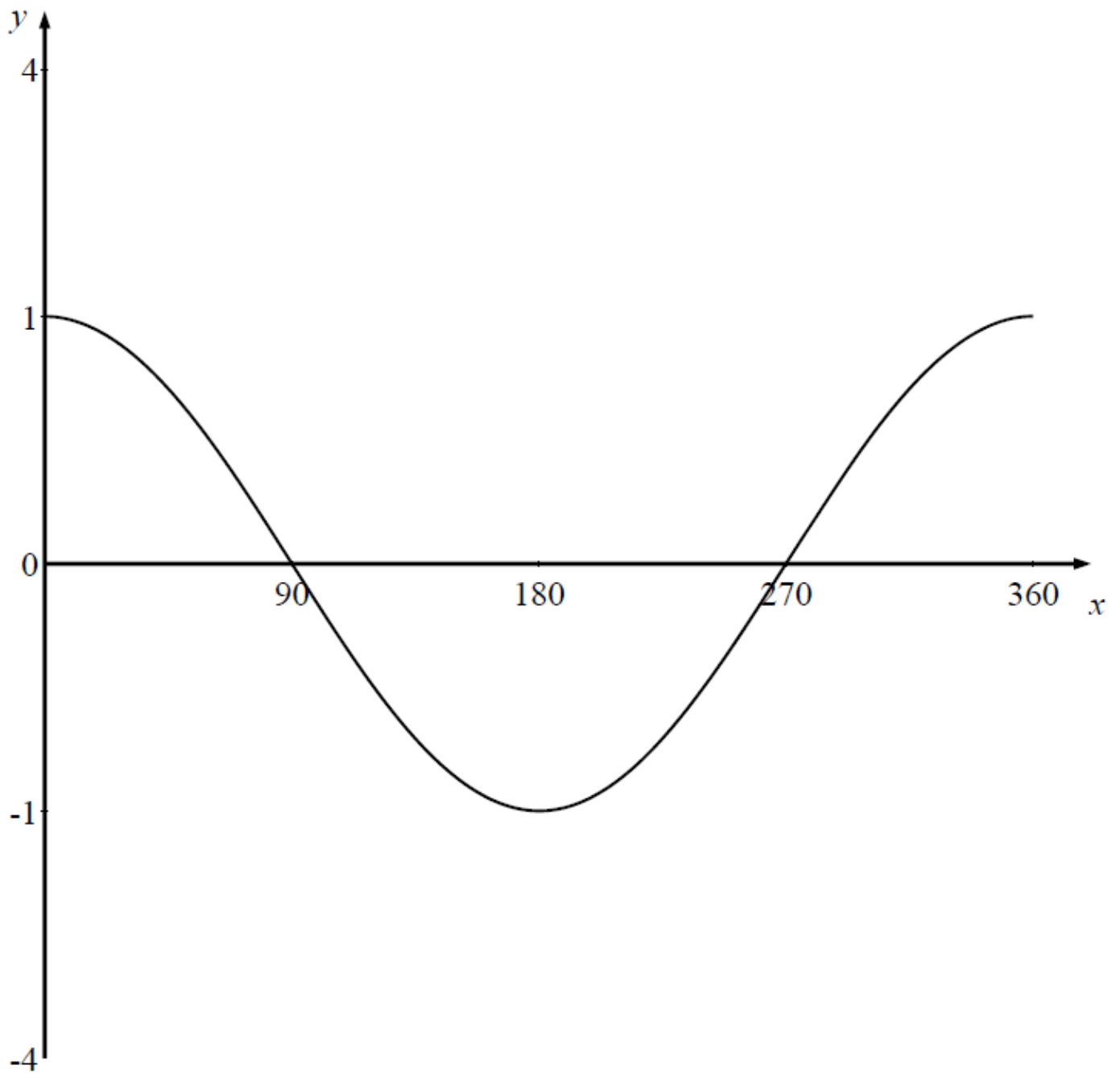
Jan 2018 - Question 13

13		Graph sketch	3	M1 for parabola with symmetry about a line $y = a$ M1 (dep M1) for -1 labelled as x intercept A1 fully correct graph drawn with all labels
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Jan 2018 - Question 19

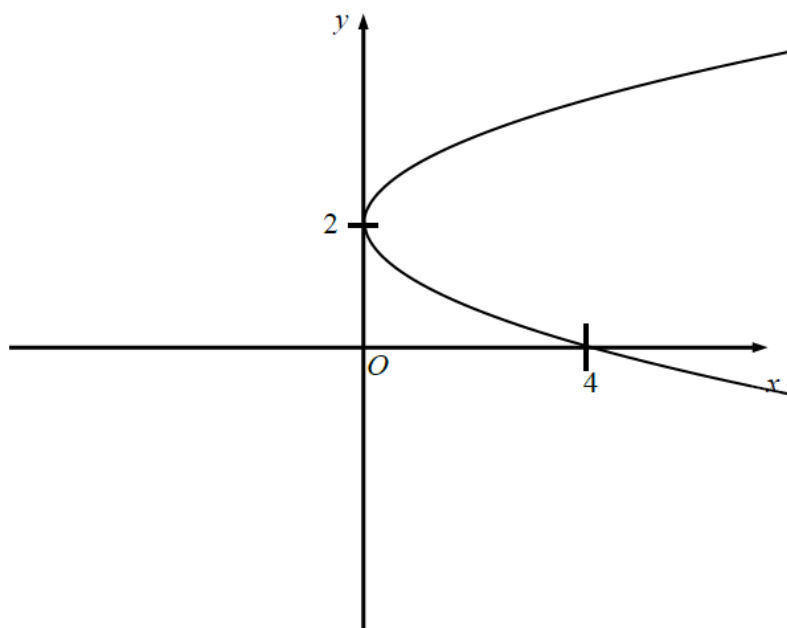
Question	Working	Answer	Mark	Notes
19		Sketch	2	M1 for correct graph shape A1 fully correct and labelled intersection at (0, 1)



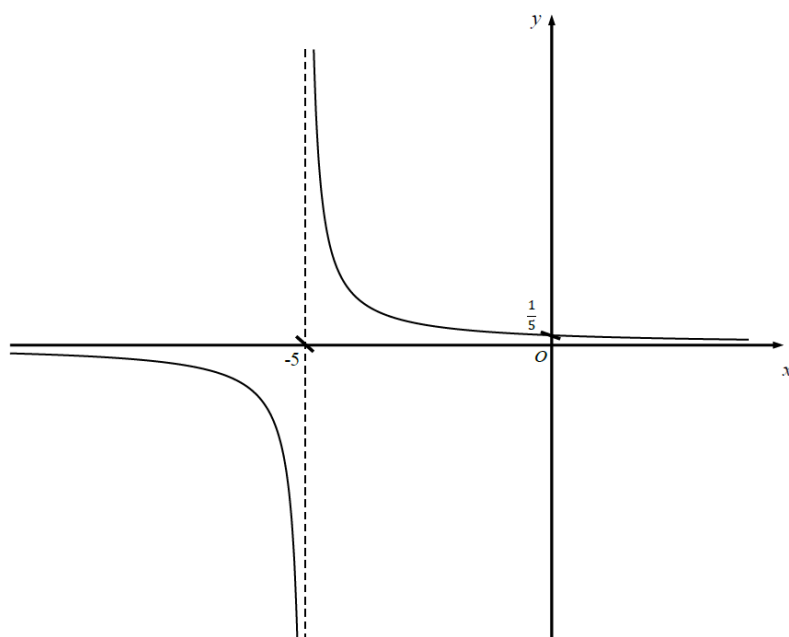
Jan 2019 - Question 18

18	(a)		Graph sketch	3	M1 for parabola with symmetry about a line $y = a$ M1 for a single y intercept labelled at 2 or for a single x intercept labelled at 4 A1 fully correct graph drawn with all labels
	(b)		Graph sketch	4	B1 for asymptote of $x = -5$ B1 for y intercept at $(0, \frac{1}{5})$ M1 for correct shape A1 for fully correct graph

Question 18(a)

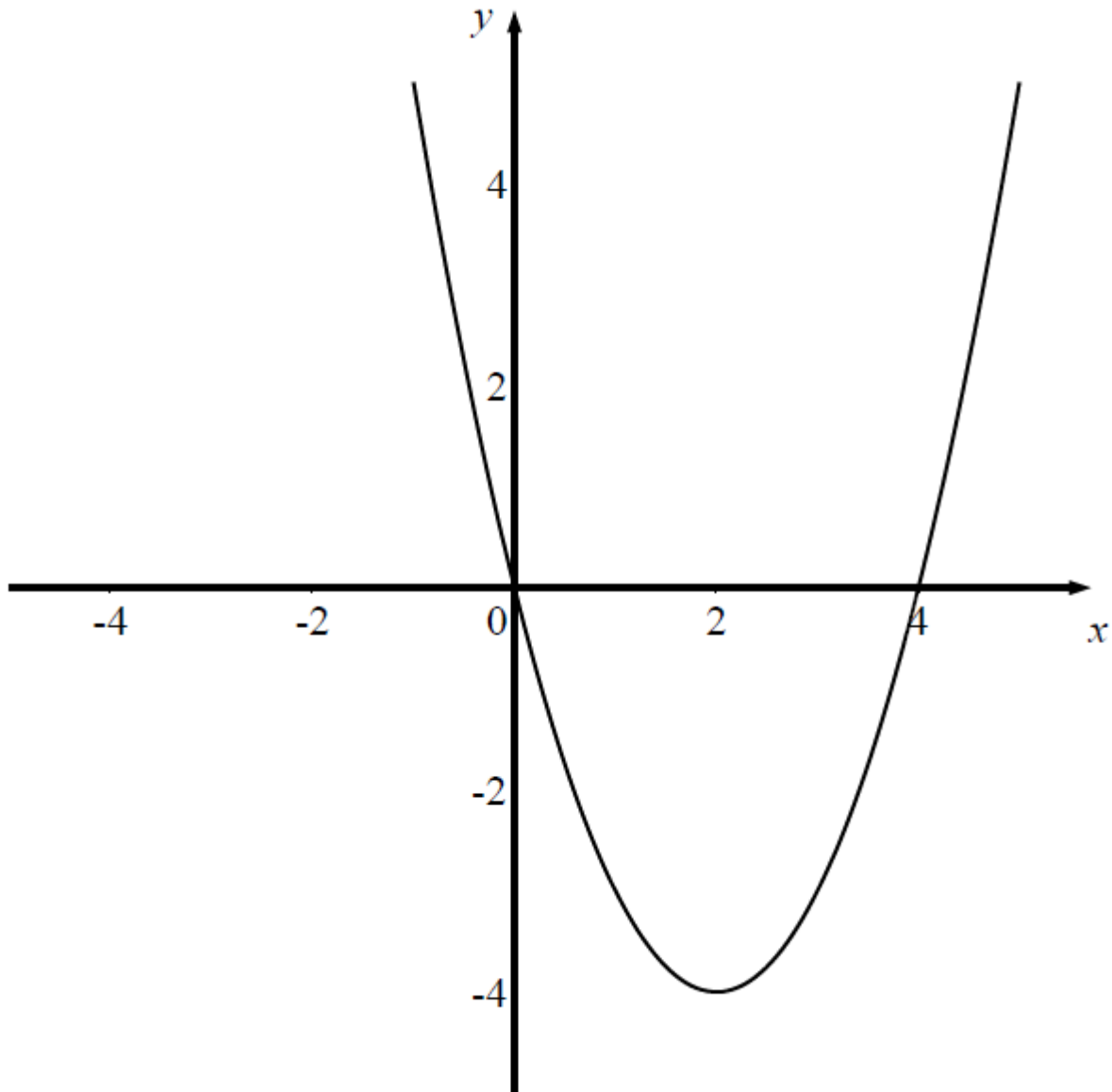


Question 18(b)



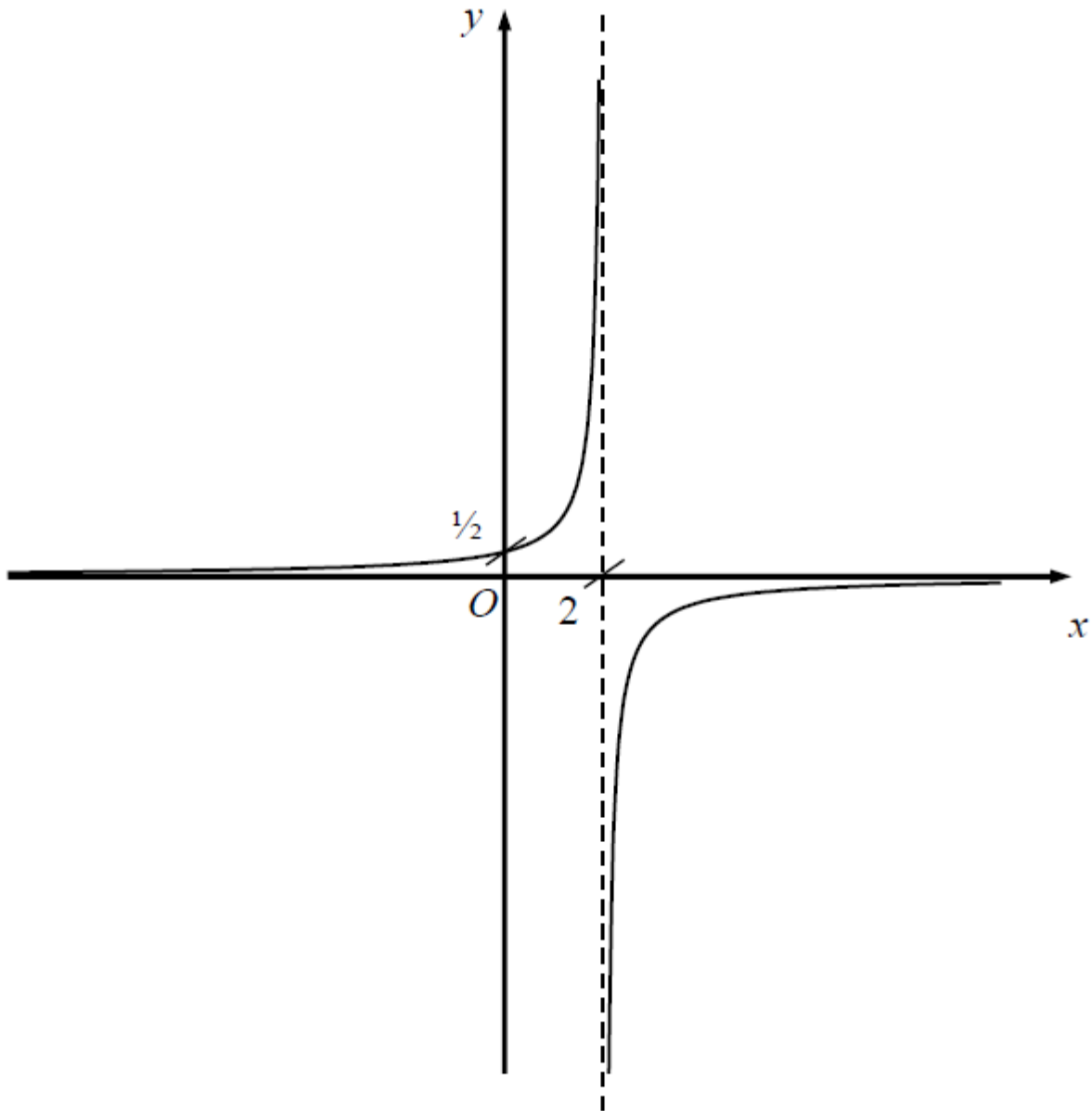
June 2019 - Question 17

Question	Working	Answer	Mark	Notes
17		Graph sketched with labels	3	M1 for a parabola in the correct orientation M1 for (2, -4) labelled at turning point or 0 and 4 labelled as intercepts on the x -axis A1 fully correct graph drawn with all labels



Jan 2020 - Question 18

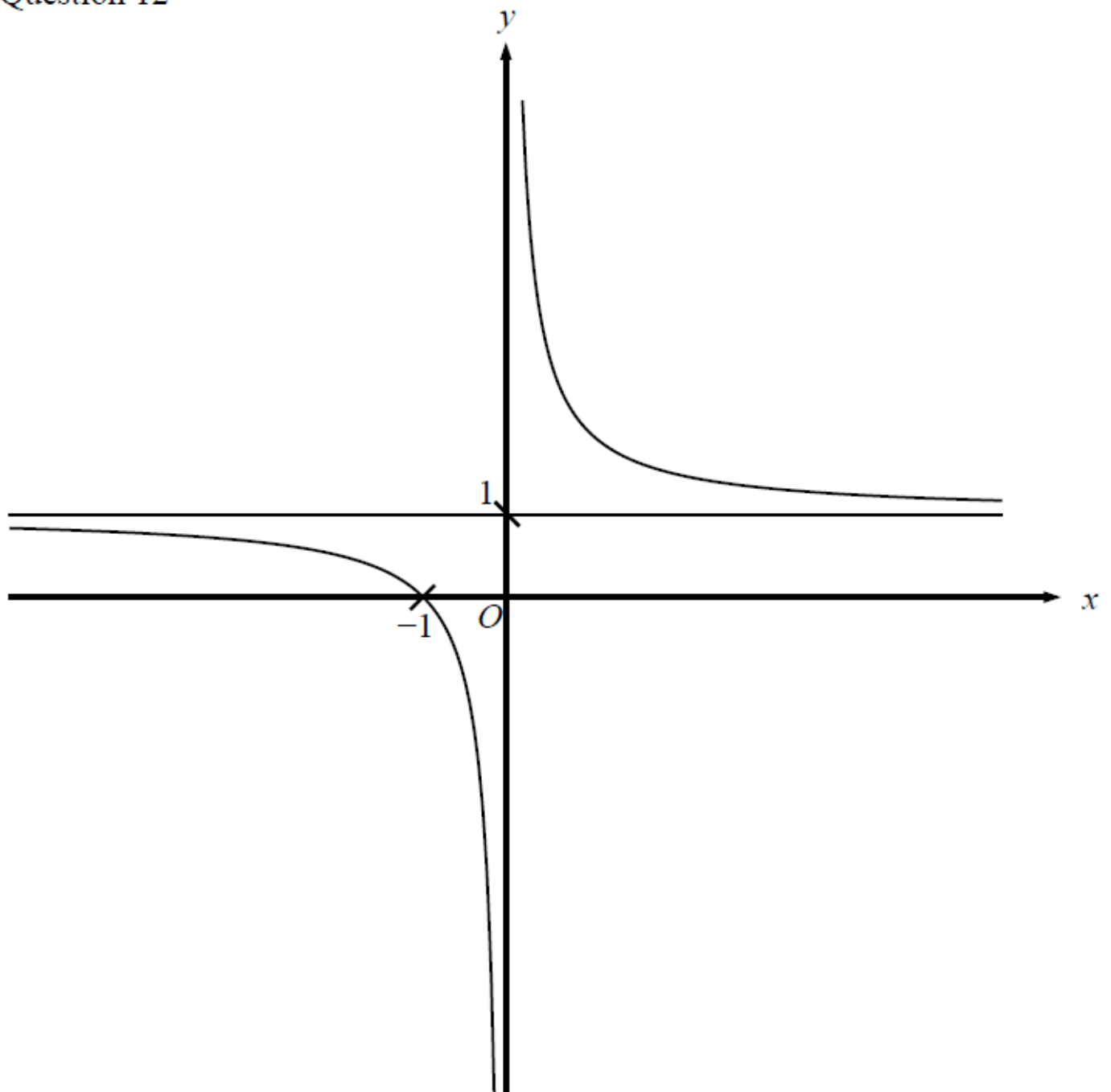
18		Graph sketched	4	B1 for asymptote of $x = 2$ B1 for intercept at $(0, \frac{1}{2})$ M1 for correct shape A1 for fully correct sketch.
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Jan 2021 - Question 12

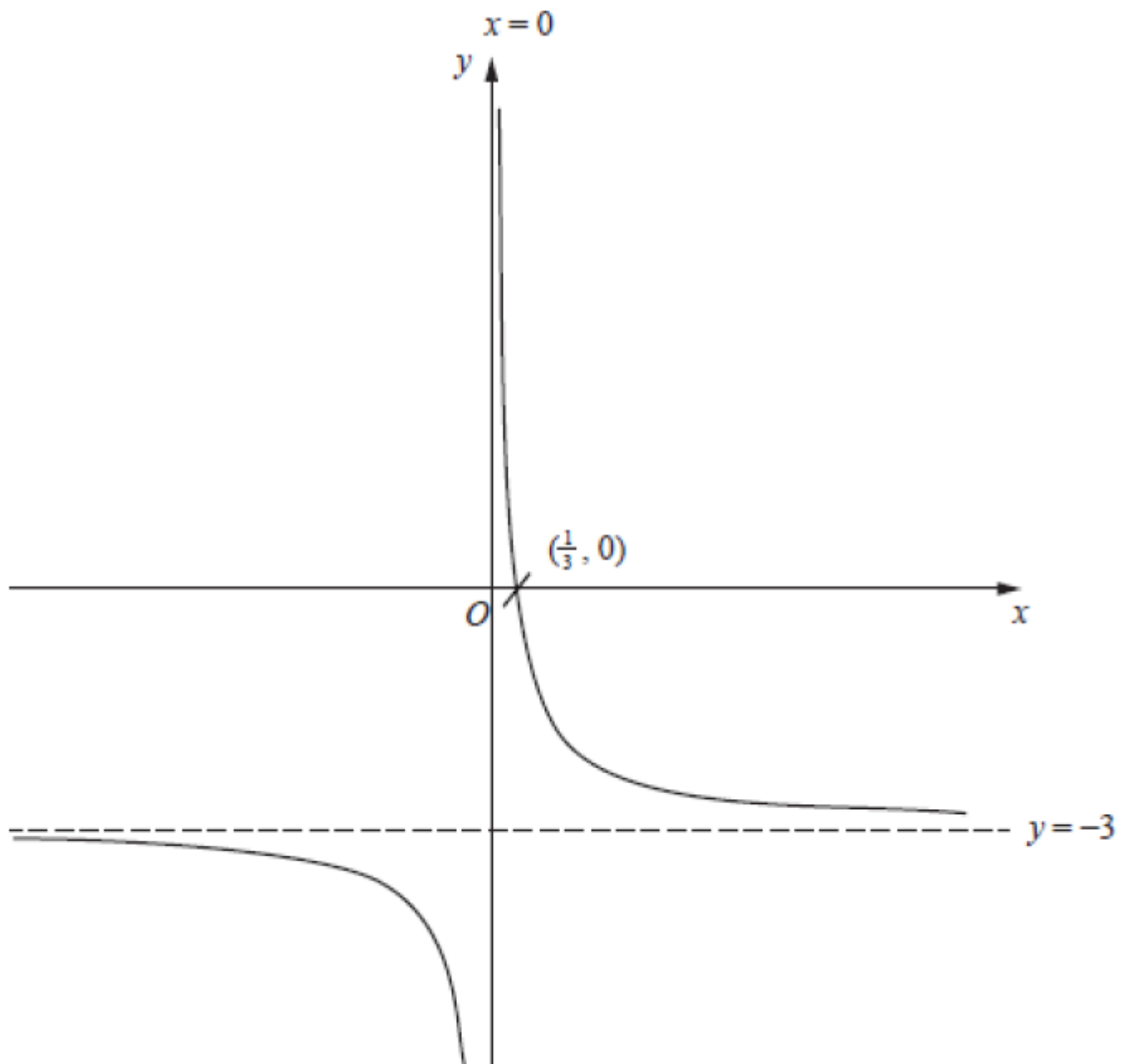
12		Graph sketched and labelled	3	M1 for correct shape of graph for $x > 0$ or for $x < 0$ A1 for correct shape and position of graph for $x > 0$ and for $x < 0$ A1 fully correct and labelled graph, showing $y = 1$ and $(-1, 0)$
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Question 12



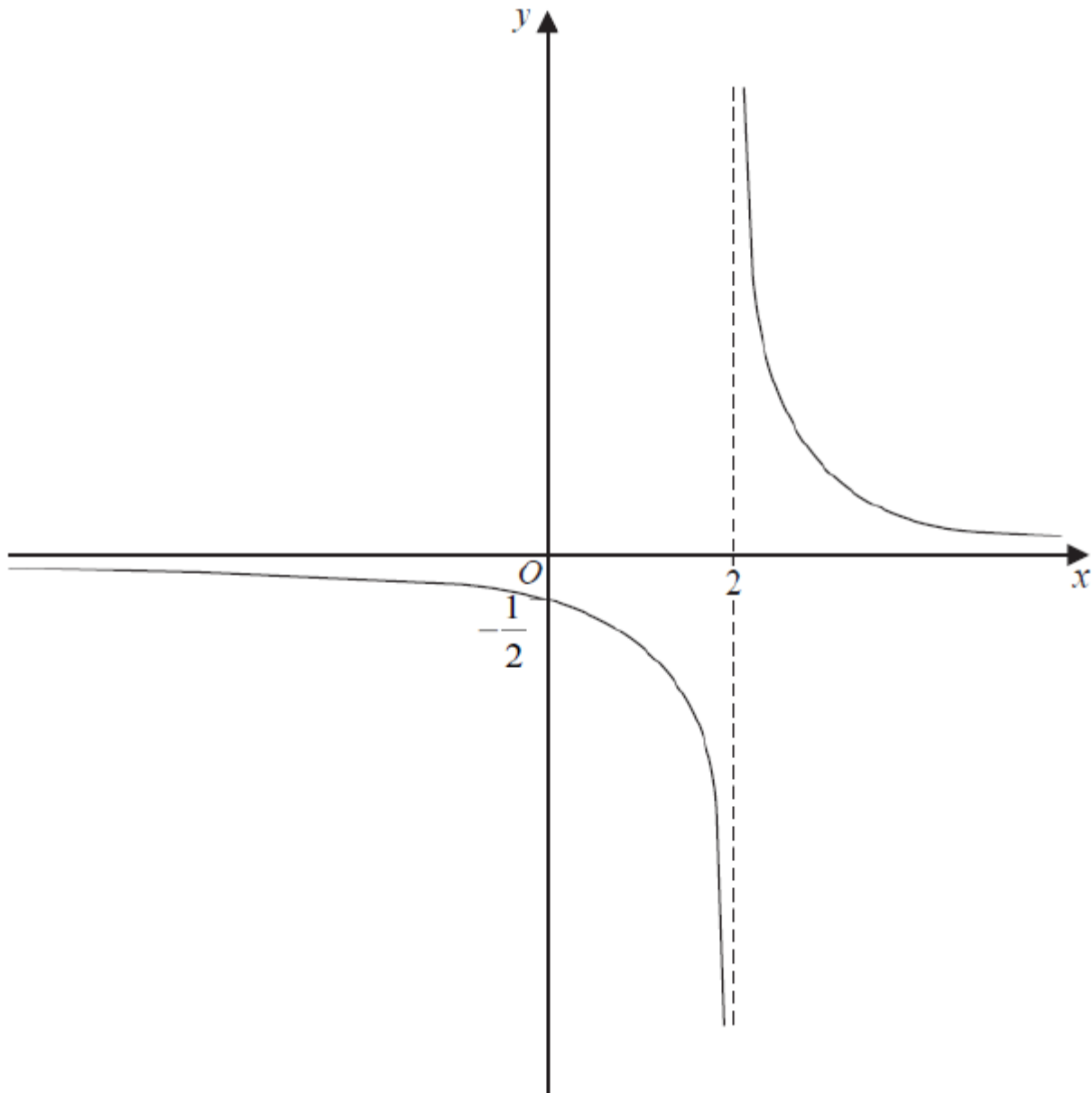
Jan 2022 - Question 19

19		Graph sketched	4	B1 for asymptote at $y = -3$ or asymptote at $x = 0$ B1 for intercept at $(\frac{1}{3}, 0)$ M1 for correct shape A1 for fully correct sketch.
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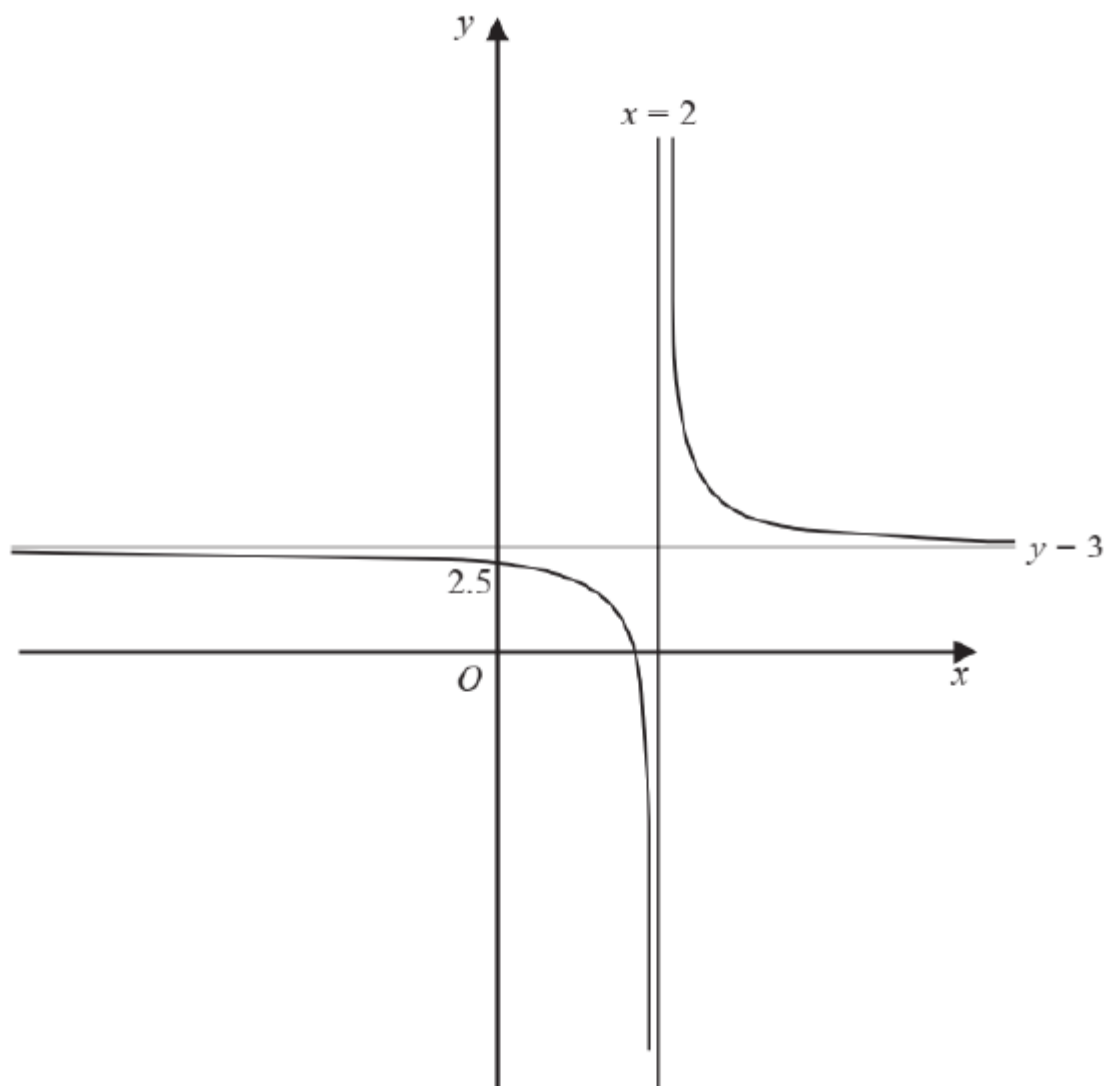
June 2022 - Question 15

15		Graph sketch	4	<p>B1 for asymptote $x = 2$ or asymptote at $y = 0$ or y intercept at $(0, -\frac{1}{2})$ shown on the graph</p> <p>B1 for 2 of asymptote $x = 2$, asymptote at $y = 0$, y intercept at $(0, -\frac{1}{2})$ shown on the graph</p> <p>M1 for correct shape</p> <p>A1 for fully correct graph showing position of asymptotes and intersection with y-axis.</p>
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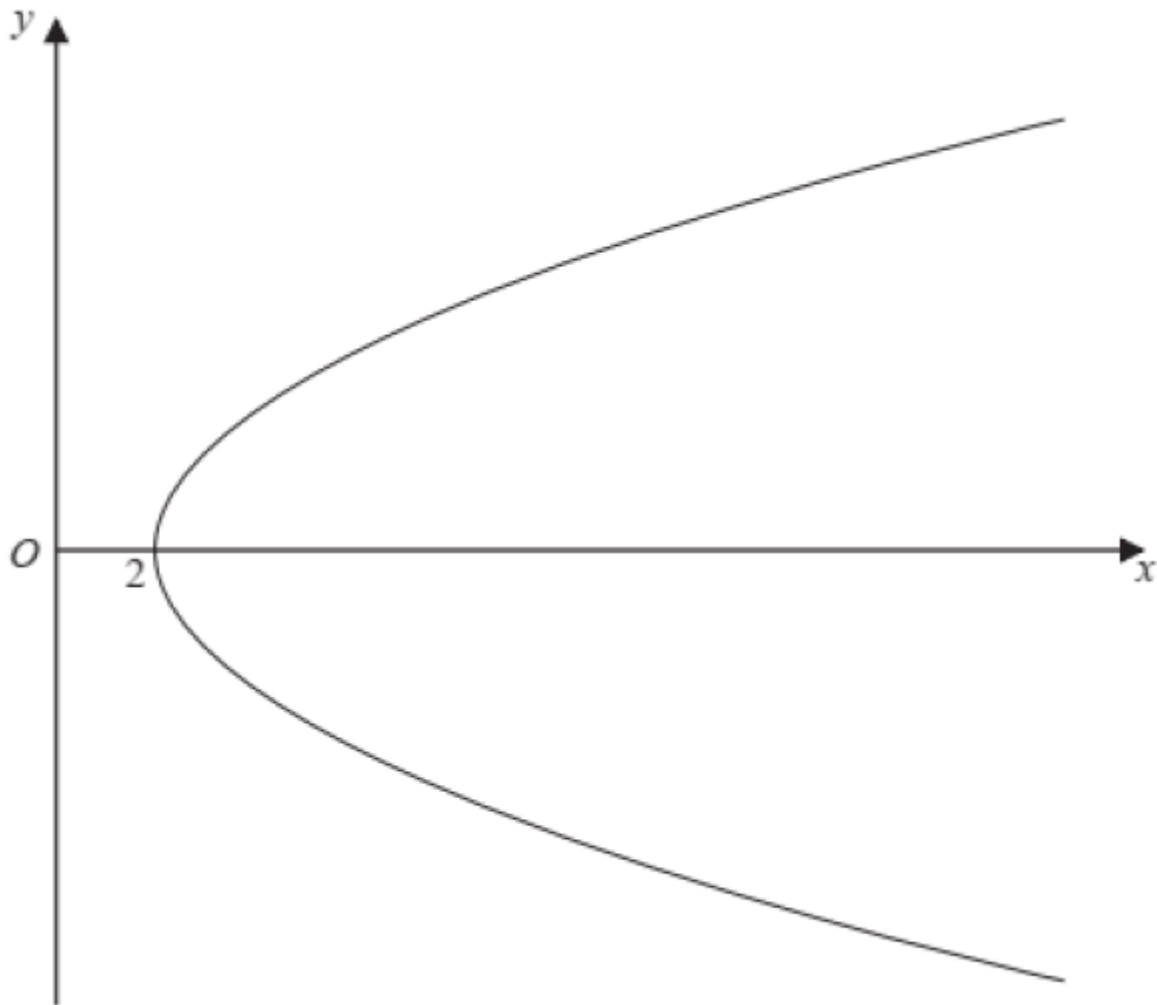
Jan 2023 - Question 15

15		Diagram	4	B2 for two of asymptote drawn at $x = 2$ or asymptote drawn at $y = 3$ or intercept of graph with the y -axis at $(0, 2\frac{1}{2})$ (B1 for one of asymptote drawn at $x = 2$ or asymptote drawn at $y = 3$ or intercept of graph with the y -axis at $(0, 2\frac{1}{2})$) M1 for correct shape A1 for fully correct sketch.
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June 2023 - Question 13

Question	Working	Answer	Mark	Notes
13		Sketch	2	M1 for correct shape and orientation or for correct shape in one quadrant with $(2, 0)$ as intercept or for a fully correct sketch of $x = -y^2 + 2$ with $(2, 0)$ as intercept A1 for correct curve symmetrical about x -axis and $(2, 0)$ as intercept



June 2023 - Question 19

19		Sketch	2	M1 for correct general shape intersecting x -axis at 0, 180, 360 only A1 fully correct graph with maximum and minimum values at 1 and -1
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Jan 2024 - Question 15

15		Graph sketch	4	B1 for asymptote of $x = 1$ or $y = 0$ B1 for y intercept at $(0, 1)$ M1 for correct shape A1 for fully correct graph showing position of asymptotes and intersection with y -axis.
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