

Level 3 Algebra - Graphs - Sketching

June 2013 - Question 10

Jan 2014 - Question 12

Jan 2015 - Question 10

June 2015 - Question 5

Jan 2016 - Question 17

June 2016 - Question 19

Jan 2017 - Question 14

Jan 2018 - Question 13

Jan 2018 - Question 19

Jan 2019 - Question 18

June 2019 - Question 17

Jan 2020 - Question 18

Jan 2021 - Question 12

Jan 2022 - Question 19

June 2022 - Question 15

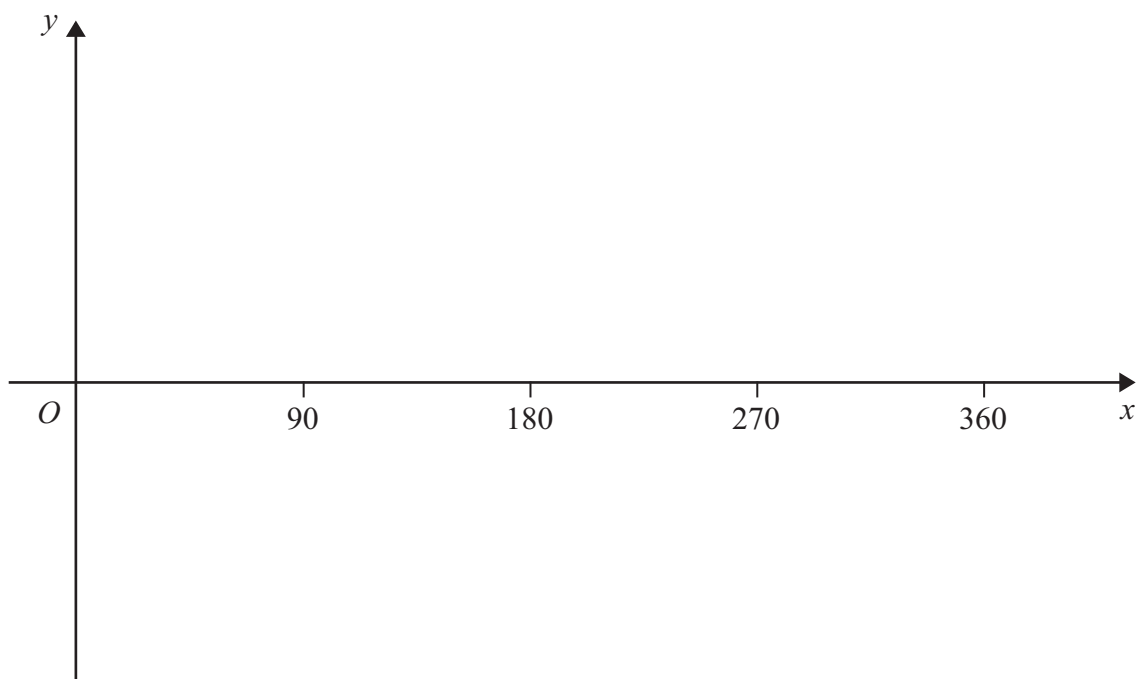
Jan 2023 - Question 15

June 2023 - Question 13

June 2023 - Question 19

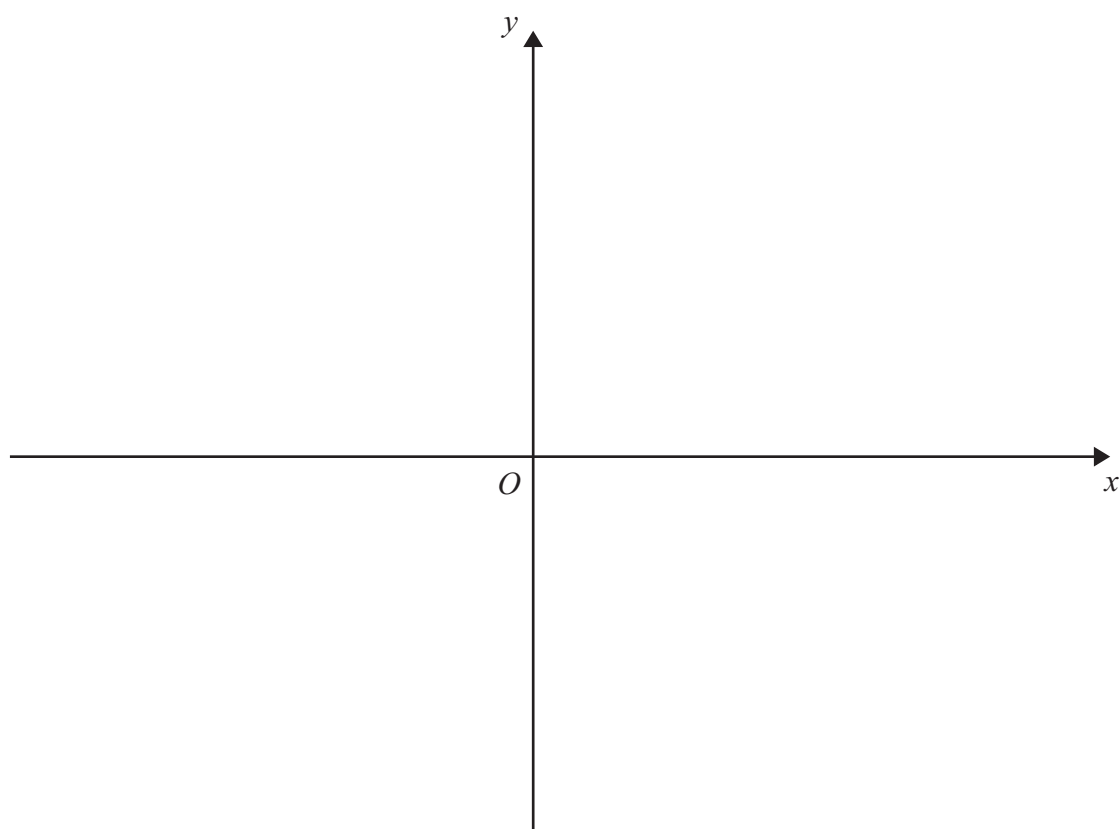
Jan 2024 - Question 15

10 (a) Sketch the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$



(2)

(b) Sketch the graph of $y = 2^x$



(2)

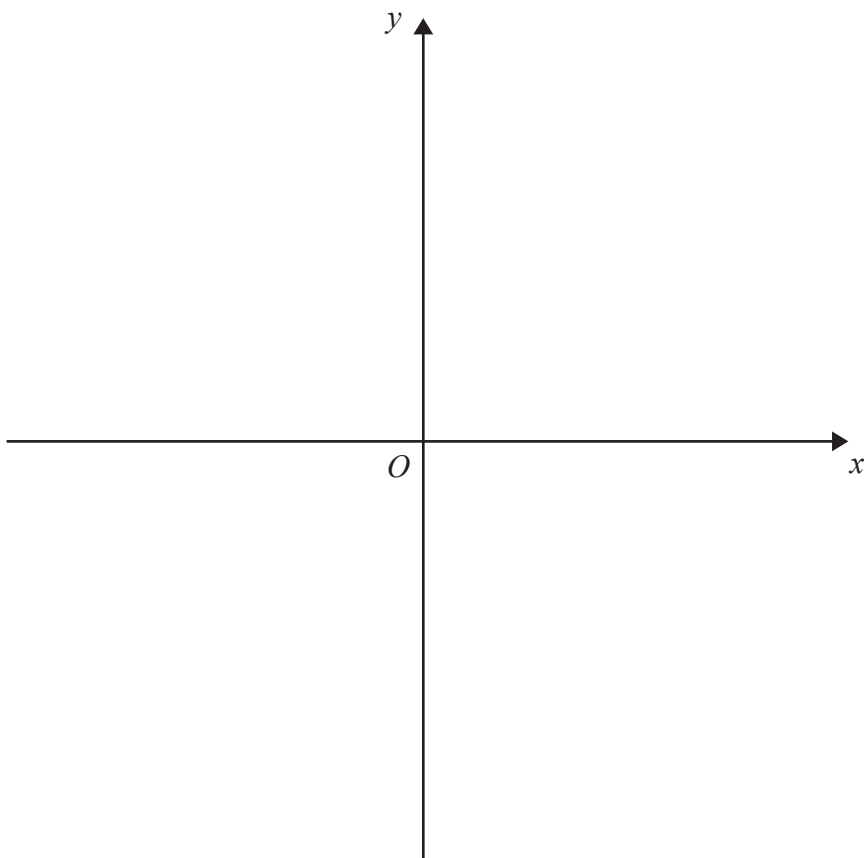
(Total for Question 10 is 4 marks)



12 (a) Write the quadratic expression $x^2 + 3x + 1$ in the form $(x + c)^2 + d$ where c and d are constants.

.....
(2)

(b) Sketch the graph of $y = x^2 + 3x + 1$ showing the coordinates of any points at which the graph intersects the y -axis.



(3)

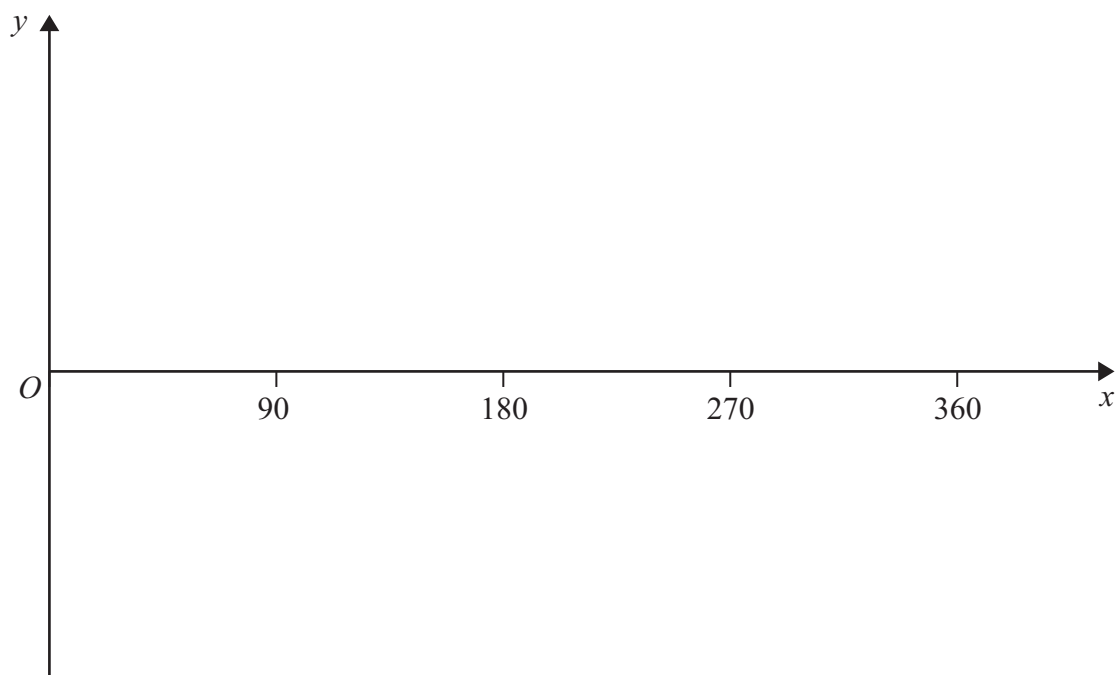
(c) State the coordinates of the turning point on the graph of $y = x^2 + 3x + 1$

.....
(1)

(Total for Question 12 is 6 marks)

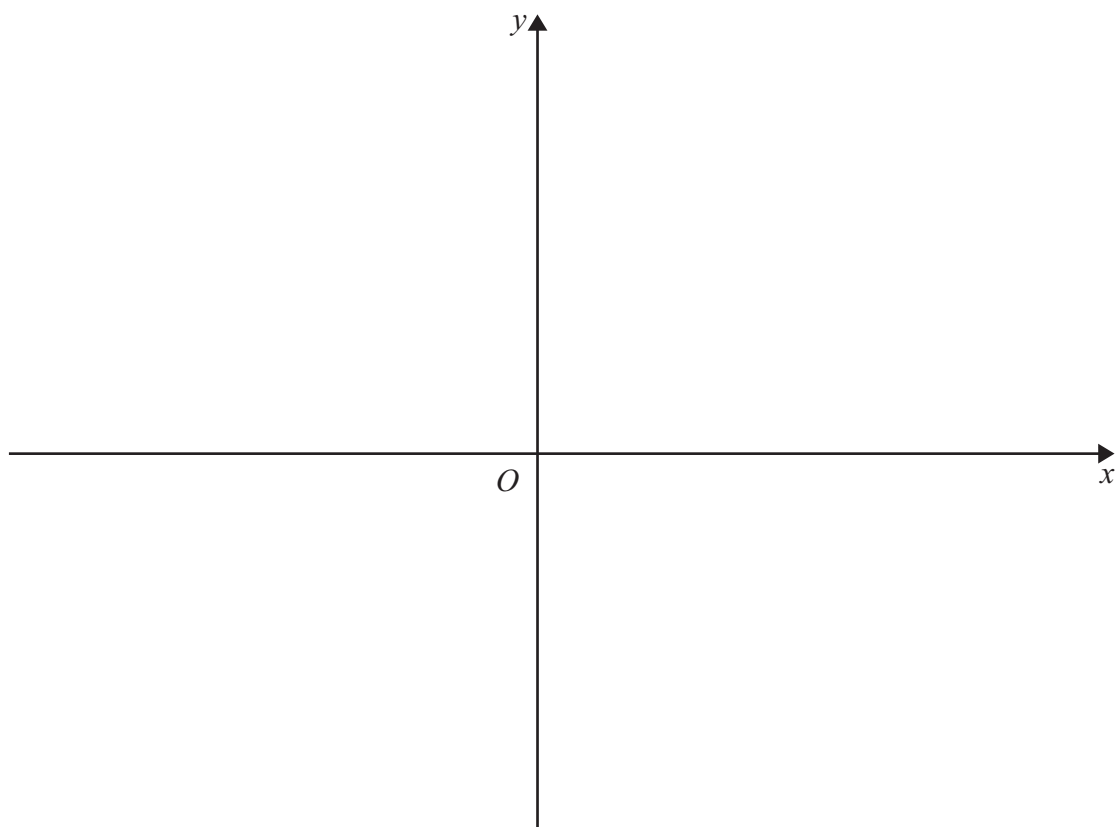


10 (a) Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



(2)

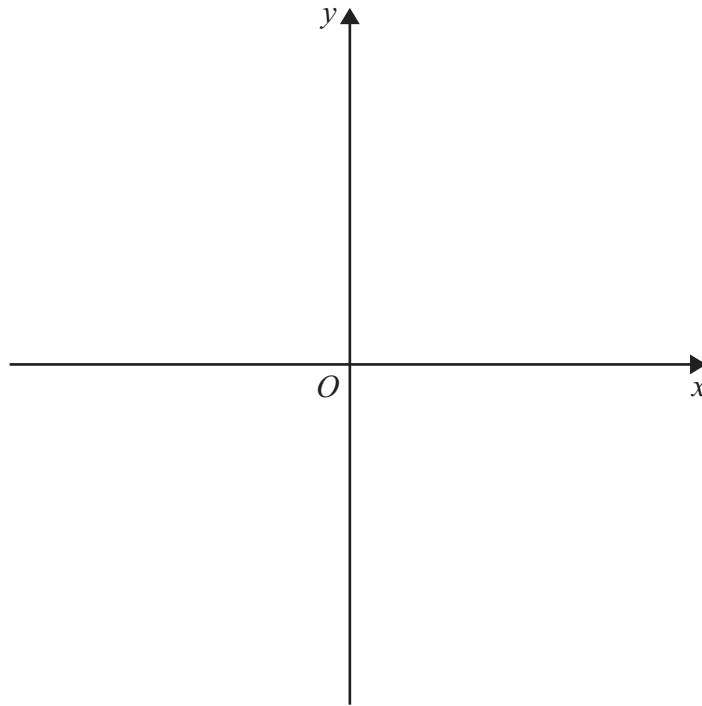
(b) Sketch the graph of $x = y^2$



(2)



(c) Sketch the graph of $x^2 + y^2 = 1$



(1)

(Total for Question 10 is 5 marks)

11 (a) Write the quadratic expression $x^2 + 4x + 7$ in the form $(x + m)^2 + n$ where m and n are integers.

.....
(2)

(b) Write down the coordinates of the turning point of the graph of $y = x^2 + 4x + 7$

.....
(1)

(Total for Question 11 is 3 marks)



5 A graph has the equation $y = \frac{1}{x+3}$

(a) Find the coordinates of the point where the graph of $y = \frac{1}{x+3}$ intersects the y -axis.

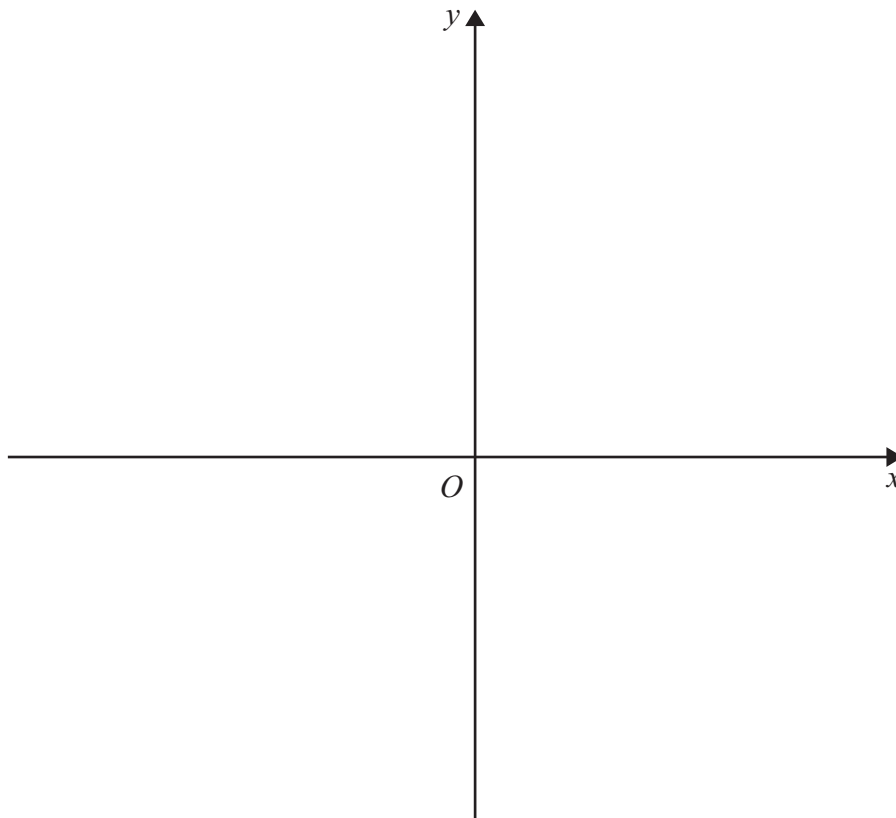
.....
(1)

The graph of $y = \frac{1}{x+3}$ has two asymptotes.

(b) Write down the equation of each asymptote.

.....
.....
(2)

(c) Sketch the graph of $y = \frac{1}{x+3}$

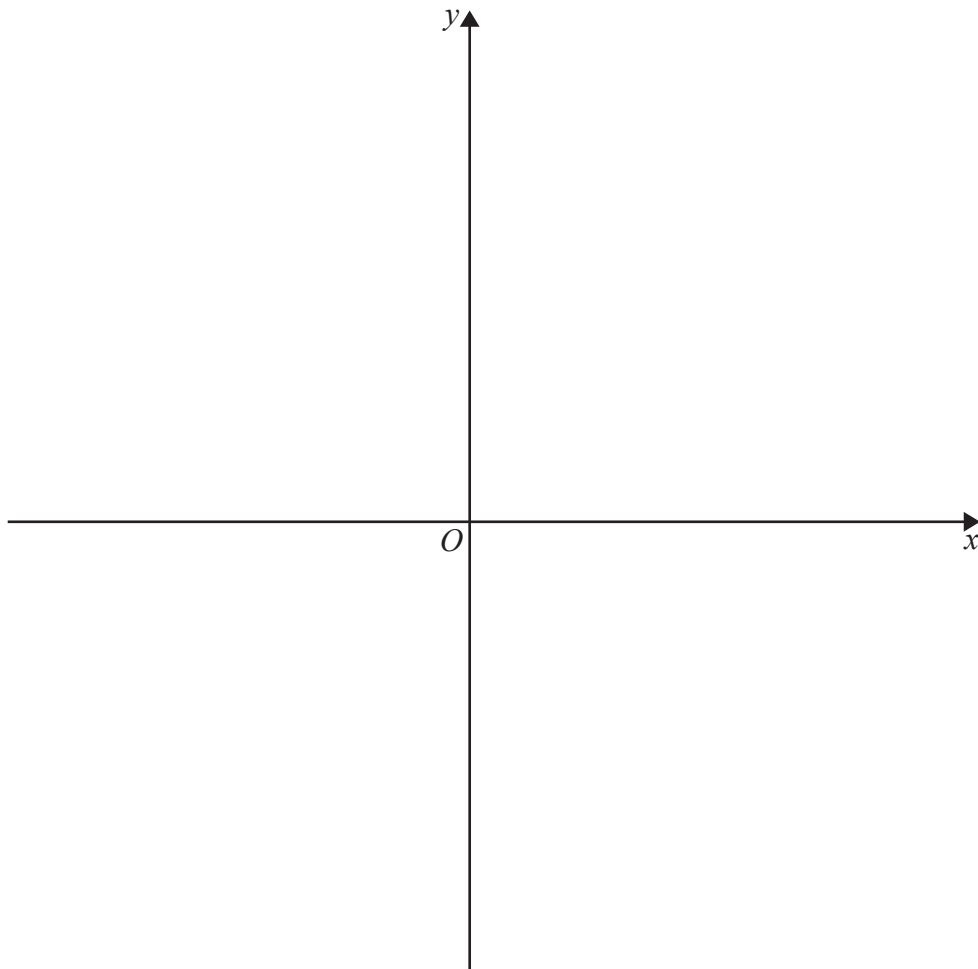


(2)

(Total for Question 5 is 5 marks)



17 Sketch the graph of $y = \frac{1}{x - 4}$



Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.

(Total for Question 17 is 4 marks)



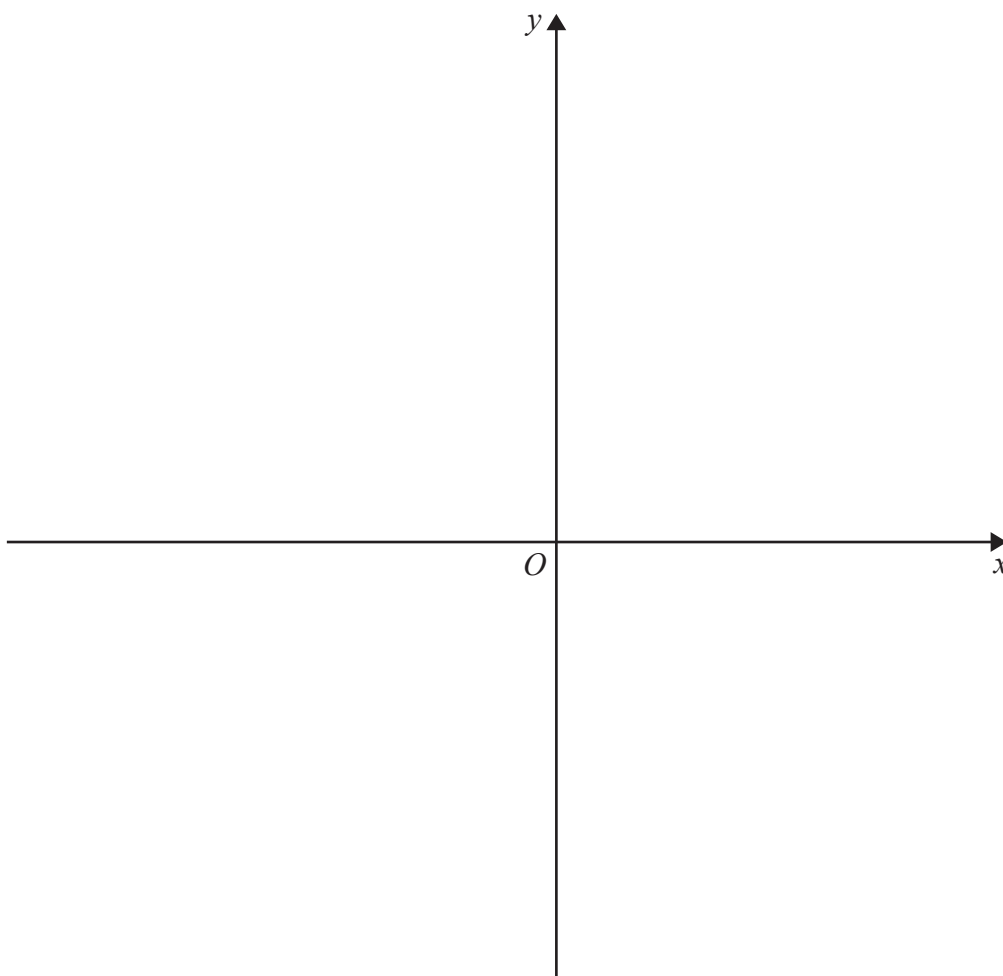
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19 On the axes below, sketch the graph of $y = \frac{1}{x+2}$

Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.

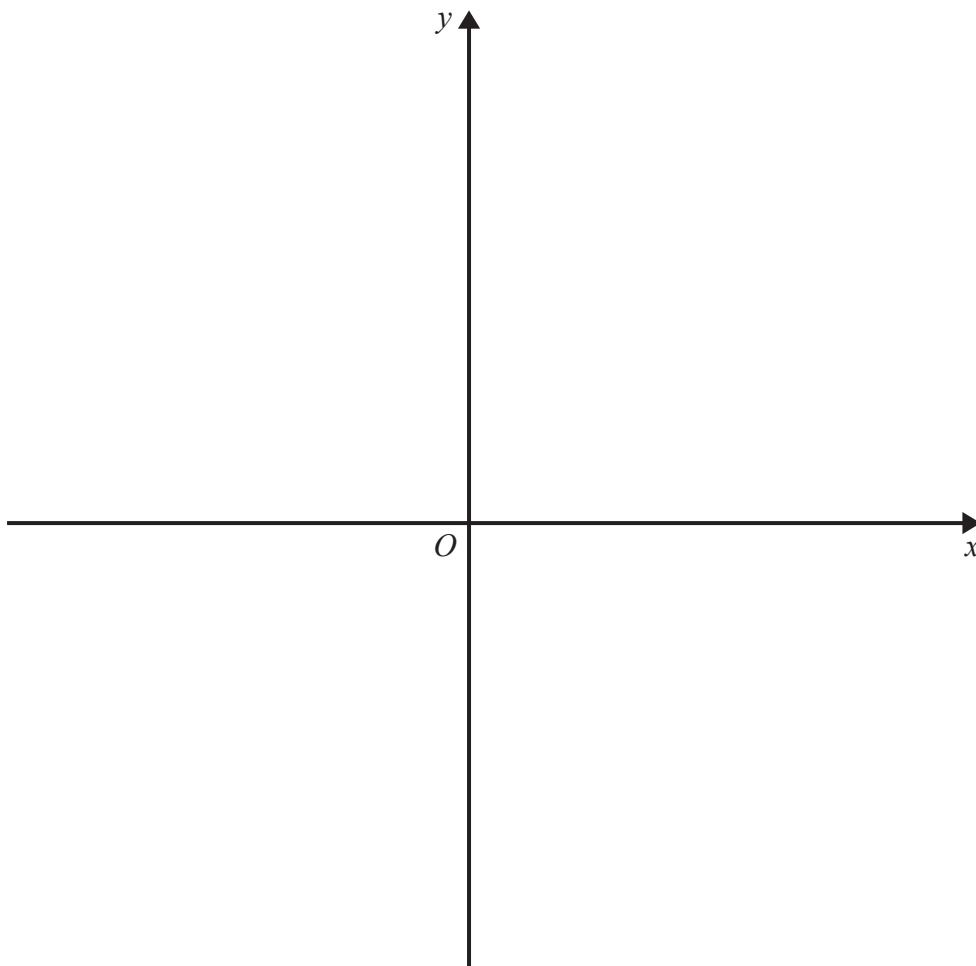


(Total for Question 19 is 4 marks)



P 4 6 4 4 2 A 0 2 1 2 4

14 Sketch the graph of $y = x^3 - 2$



(Total for Question 14 is 3 marks)

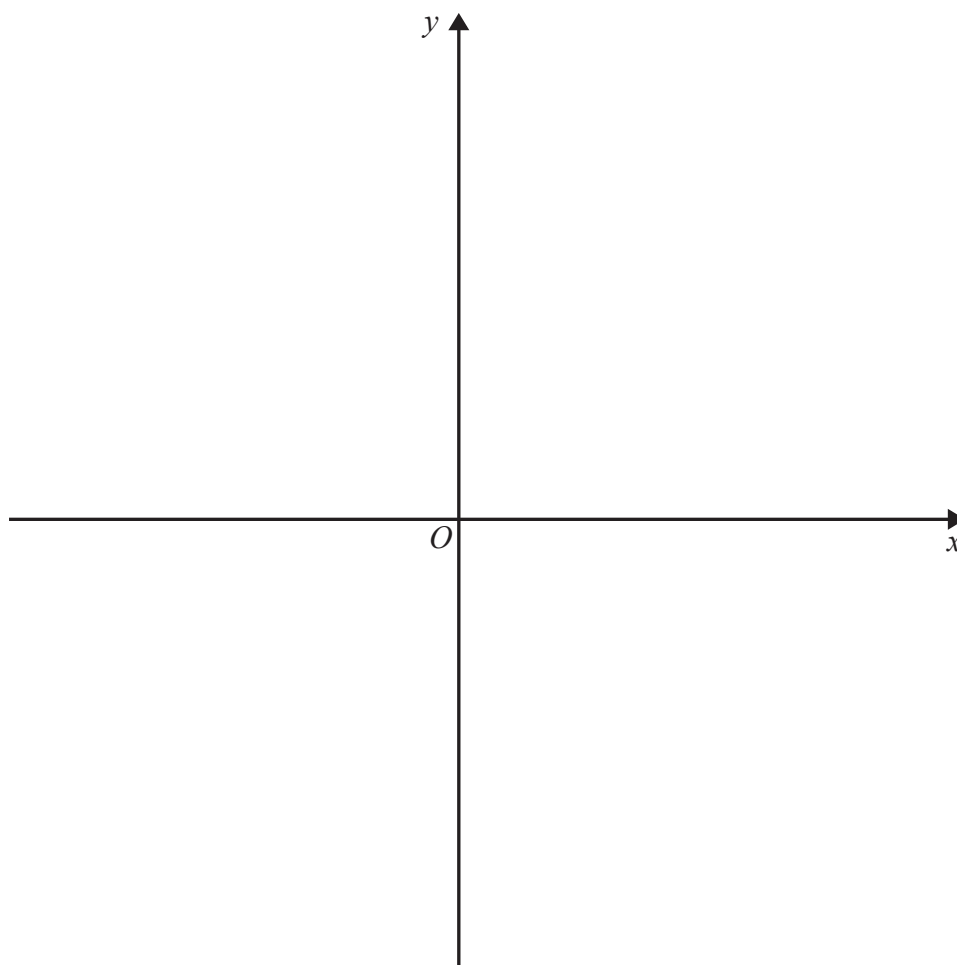
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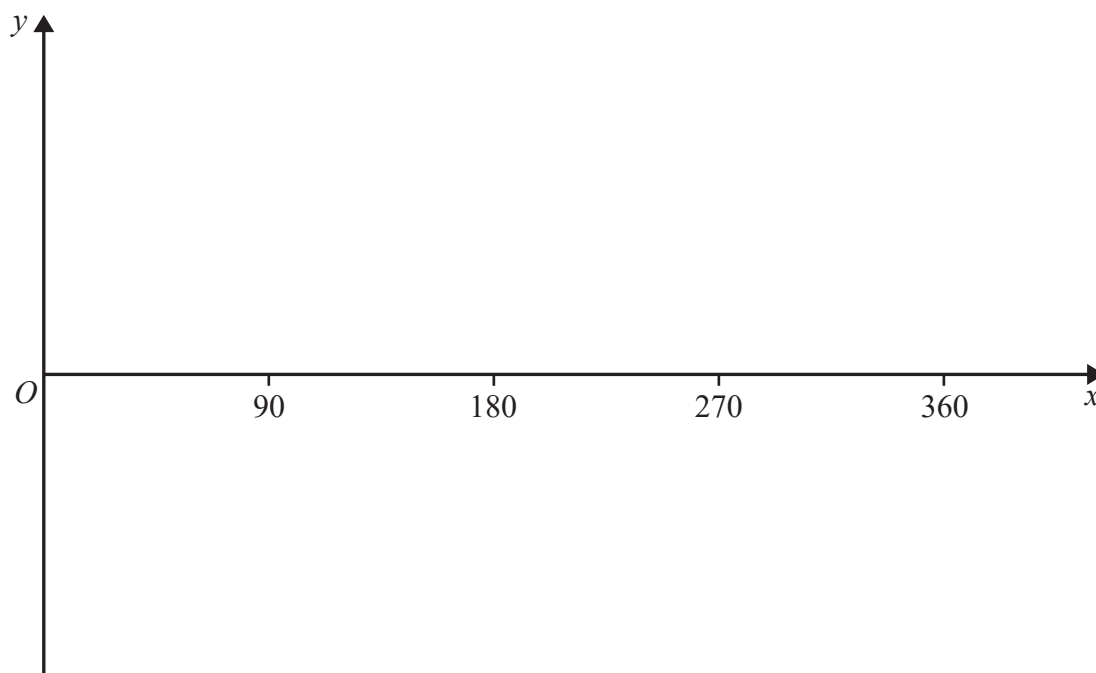
13 Sketch the graph of $x = y^2 - 1$



(Total for Question 13 is 3 marks)



19 Sketch the graph of $y = \cos x^\circ$ for $0 \leq x \leq 360$



(Total for Question 19 is 2 marks)

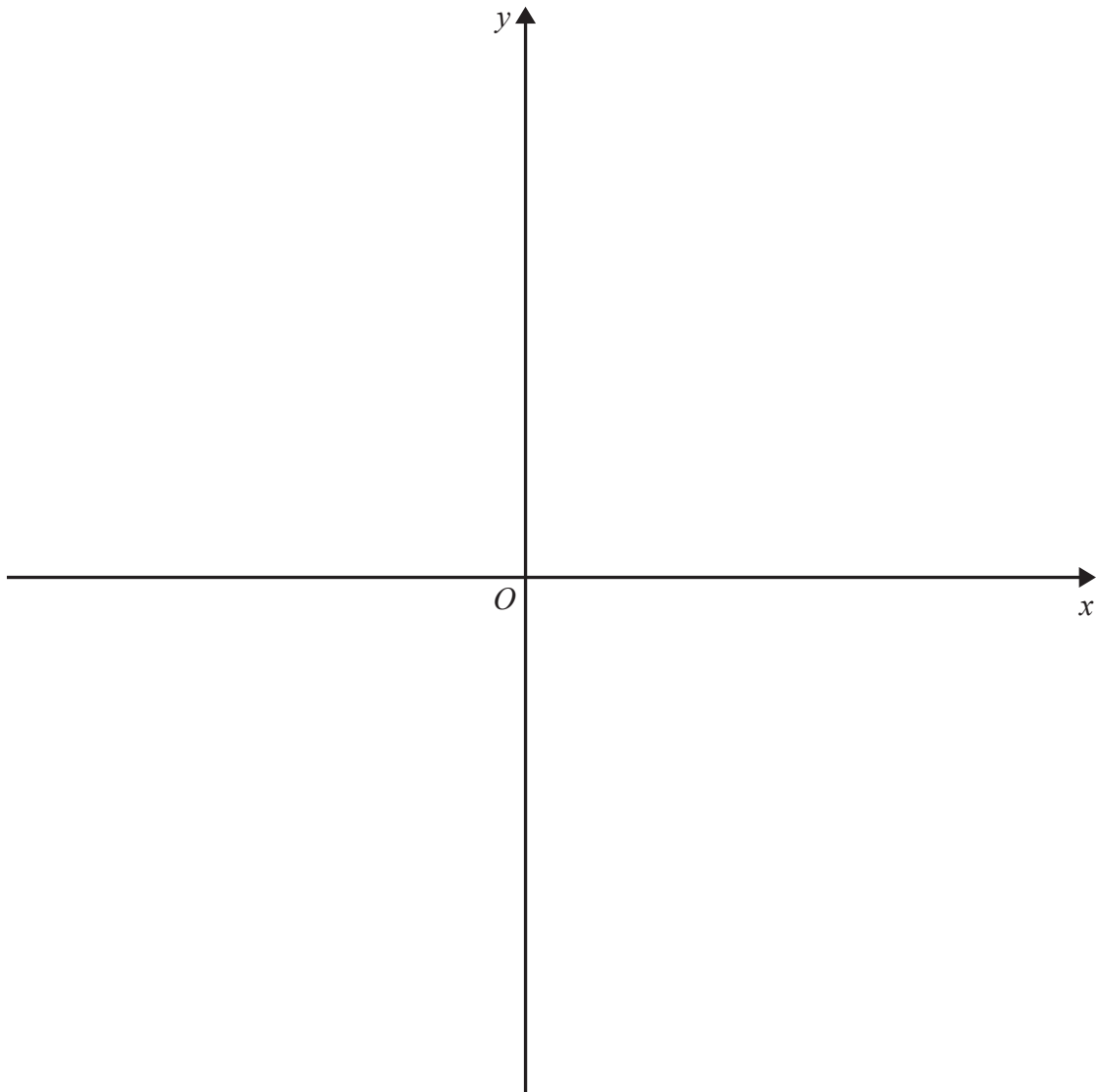
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- 18 (a) On the axes below, sketch the graph of $x = (y - 2)^2$
Show clearly the coordinates of any points of intersection of the graph with the axes.



(3)

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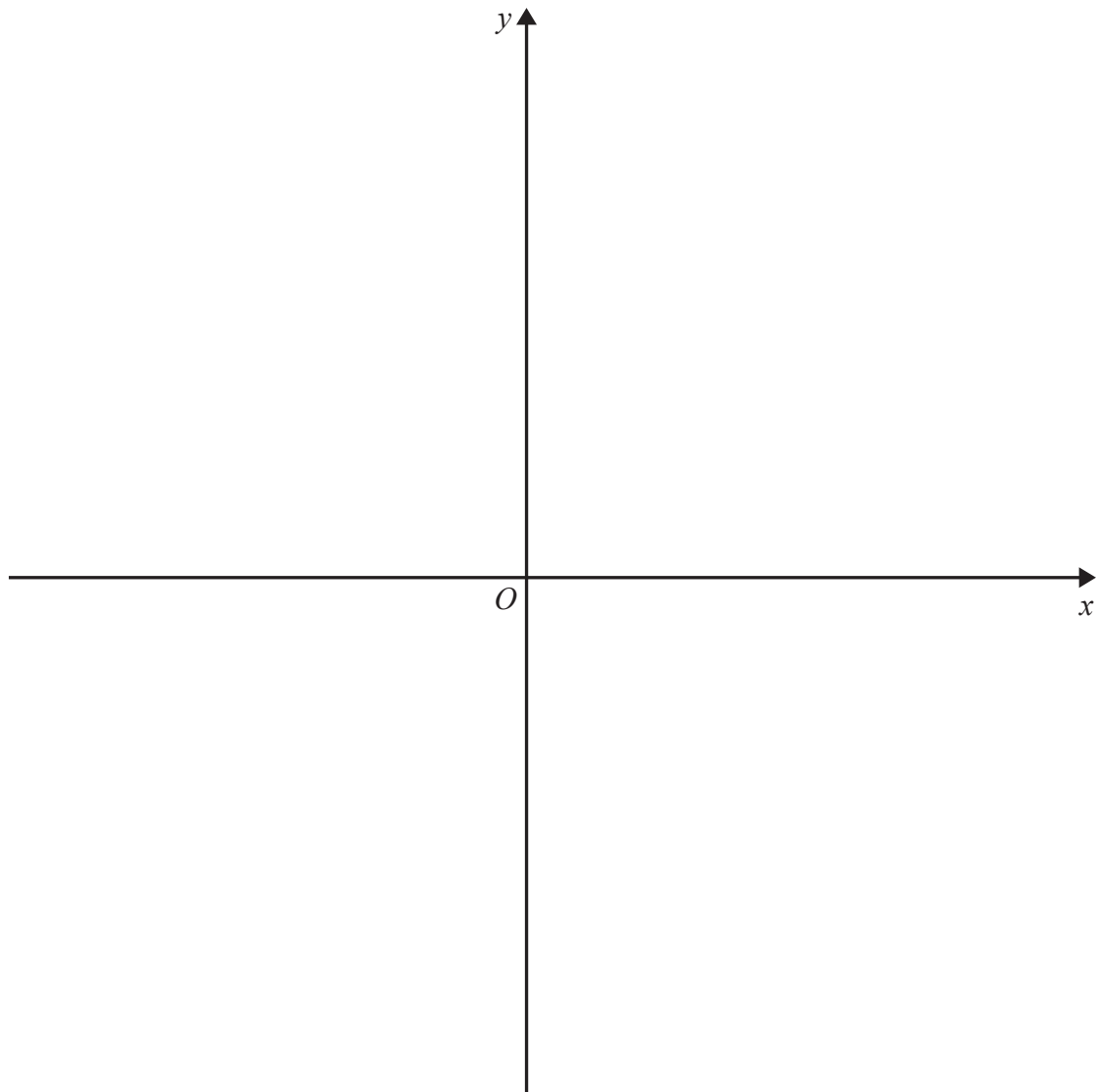
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(b) On the axes below, sketch the graph of $y = \frac{1}{x+5}$

Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.



(4)

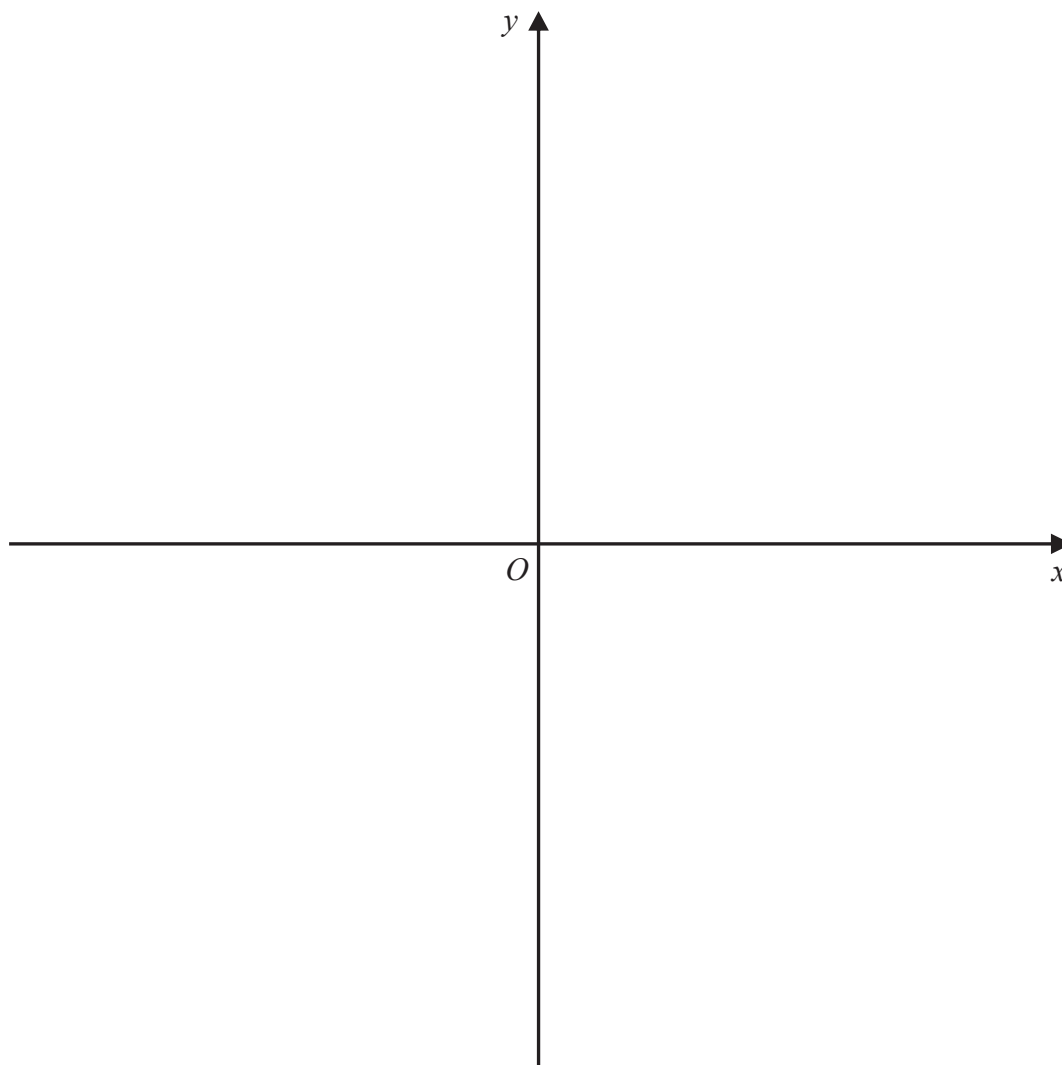
(Total for Question 18 is 7 marks)

TOTAL FOR PAPER IS 90 MARKS



17 Sketch the graph of $y = x^2 - 4x$

Mark, on your sketch, the coordinates of the turning point of the graph and the coordinates of the points where the graph intersects the x -axis.



(Total for Question 17 is 3 marks)

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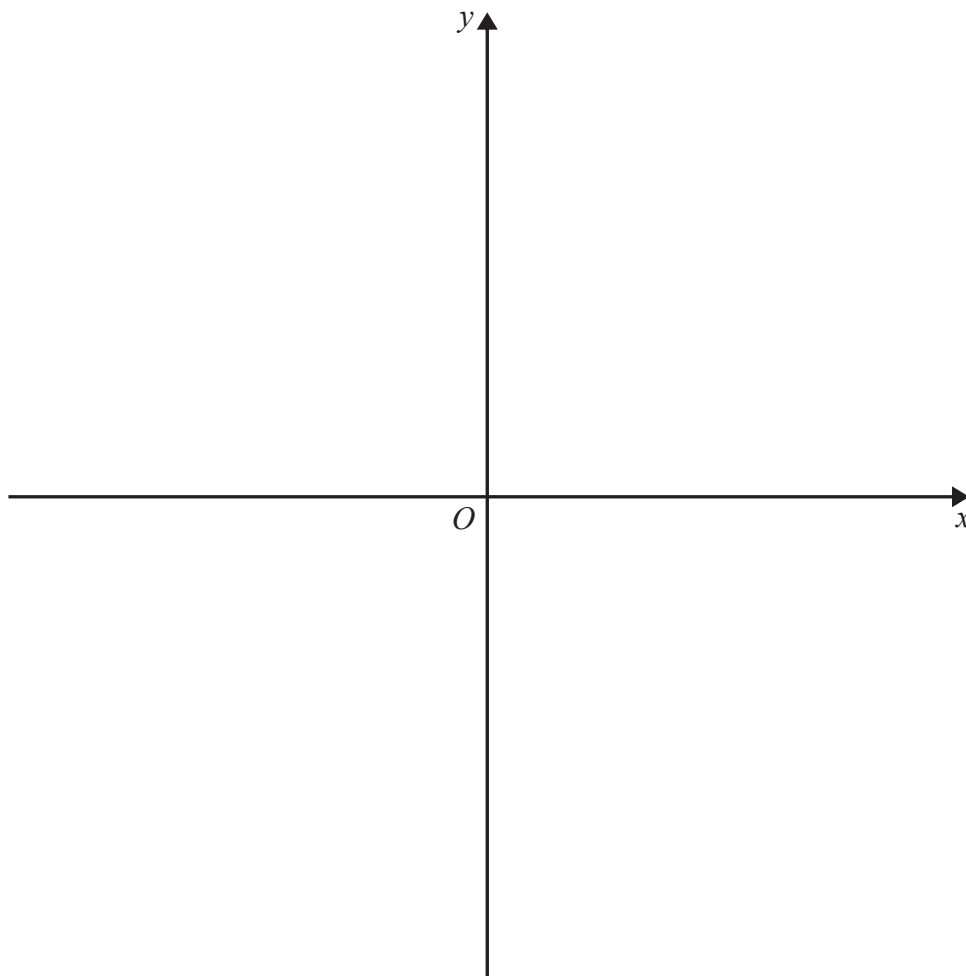
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18 Sketch the graph of $y = \frac{1}{2-x}$

Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.



(Total for Question 18 is 4 marks)

TOTAL FOR PAPER IS 90 MARKS

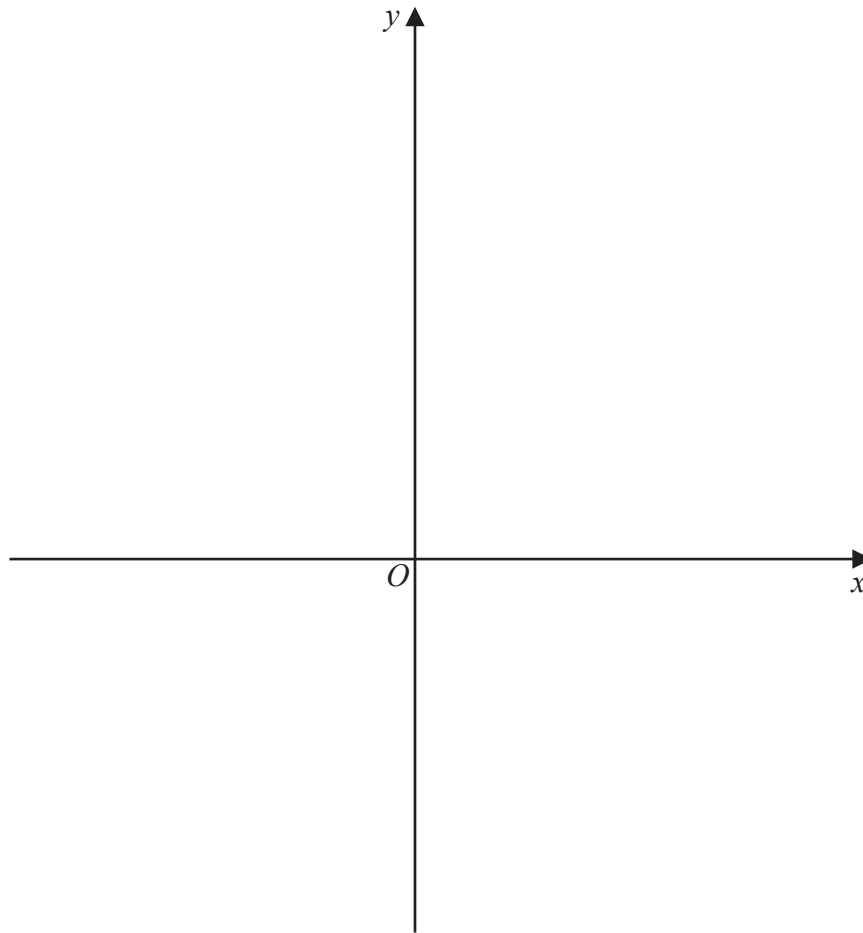


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12 Using the axes below, sketch the graph of $y = \frac{1}{x} + 1$
Label clearly any asymptotes.

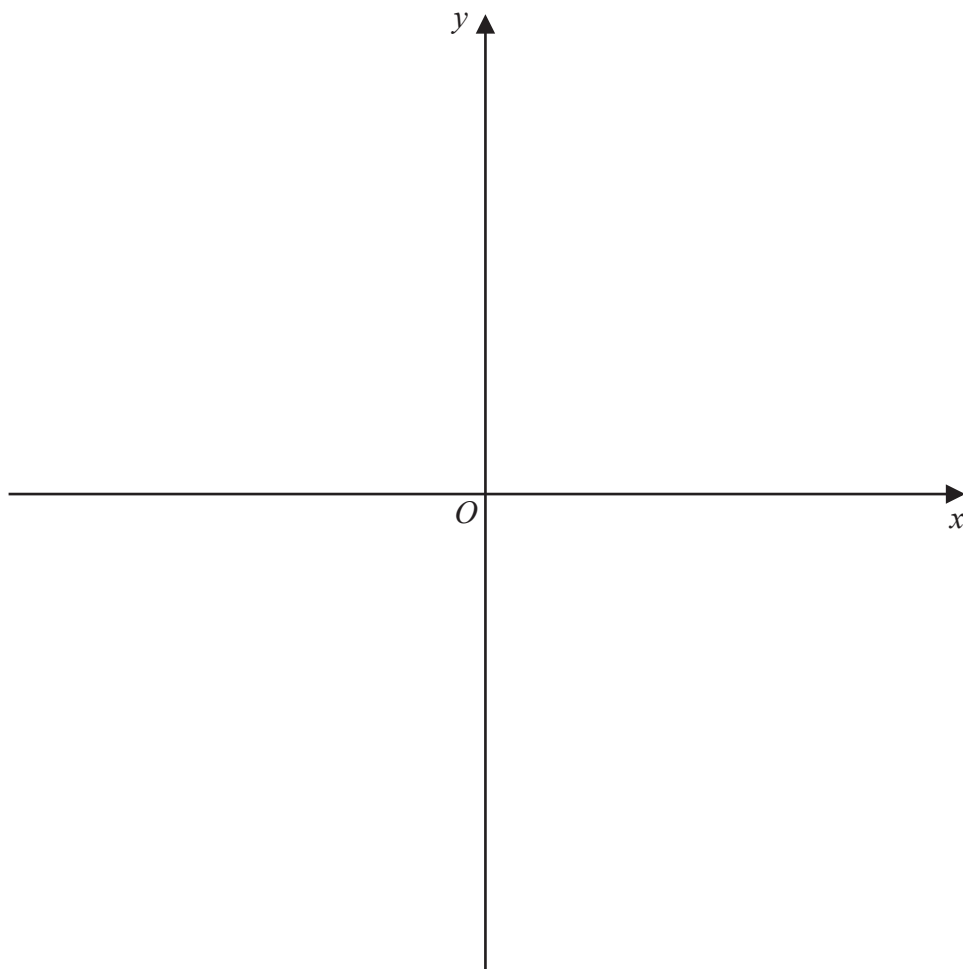


(Total for Question 12 is 3 marks)



19 Using the axes below, sketch the graph of $y = \frac{1}{x} - 3$

Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.



(Total for Question 19 is 4 marks)

TOTAL FOR PAPER IS 90 MARKS

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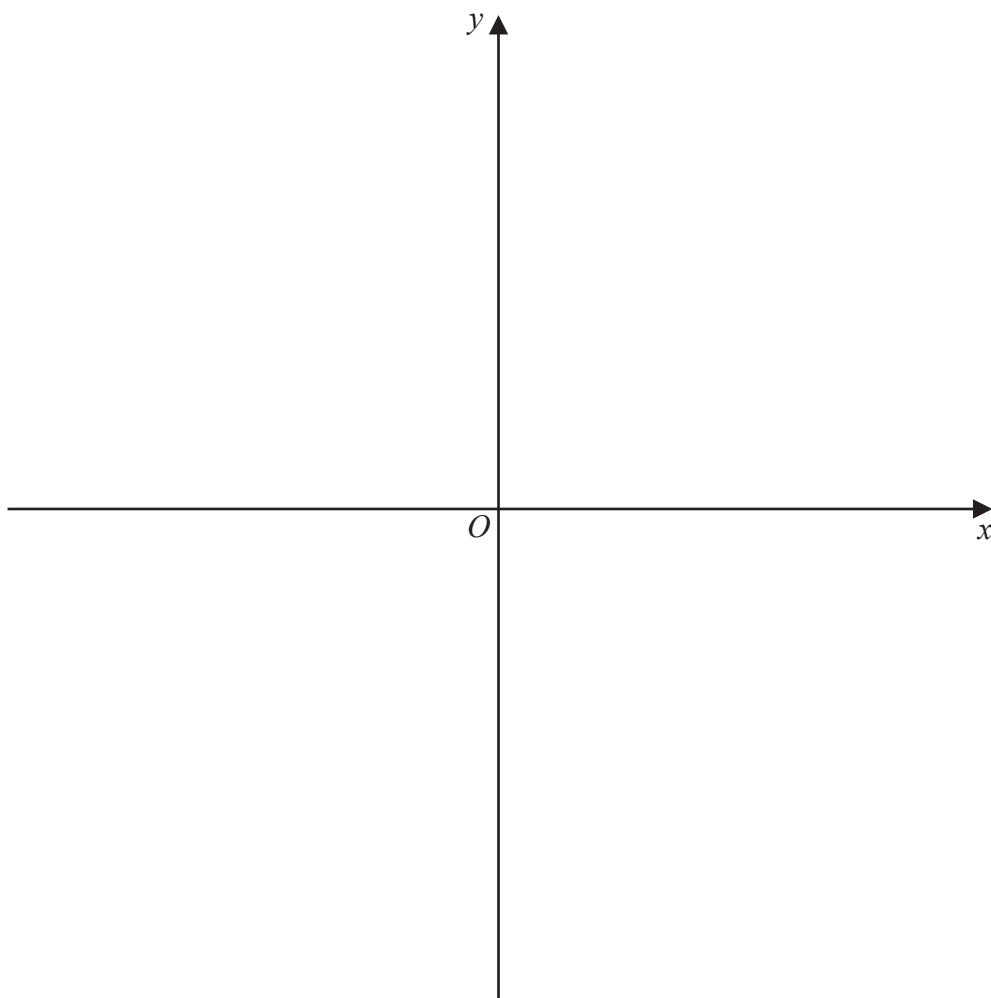
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15 Using the axes below, sketch the graph $y = \frac{1}{x - 2}$

Show clearly any asymptotes and the coordinates of any point of intersection of the graph with the axes.



(Total for Question 15 is 4 marks)

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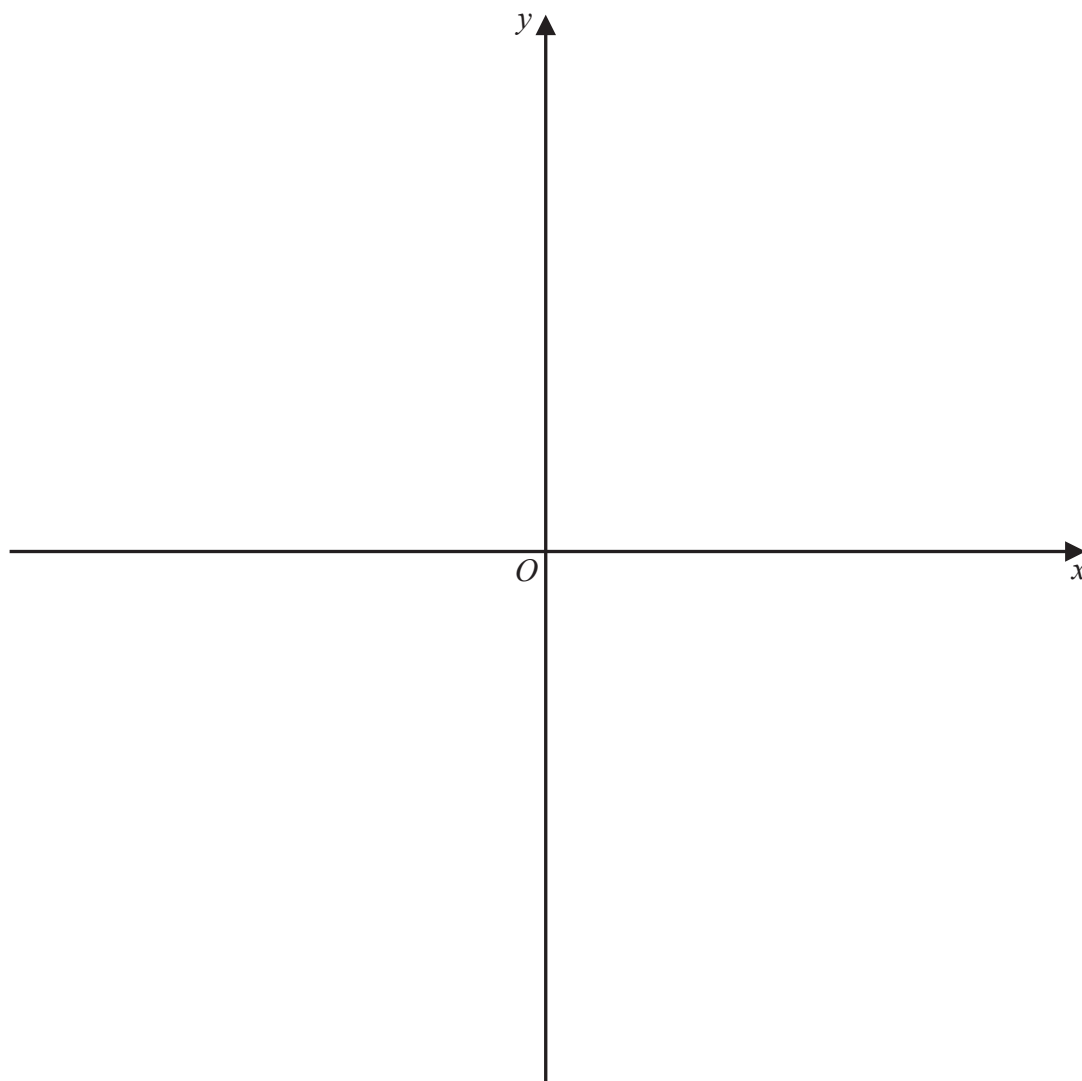
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15 Using the axes below, sketch the graph of $y = \frac{1}{x-2} + 3$

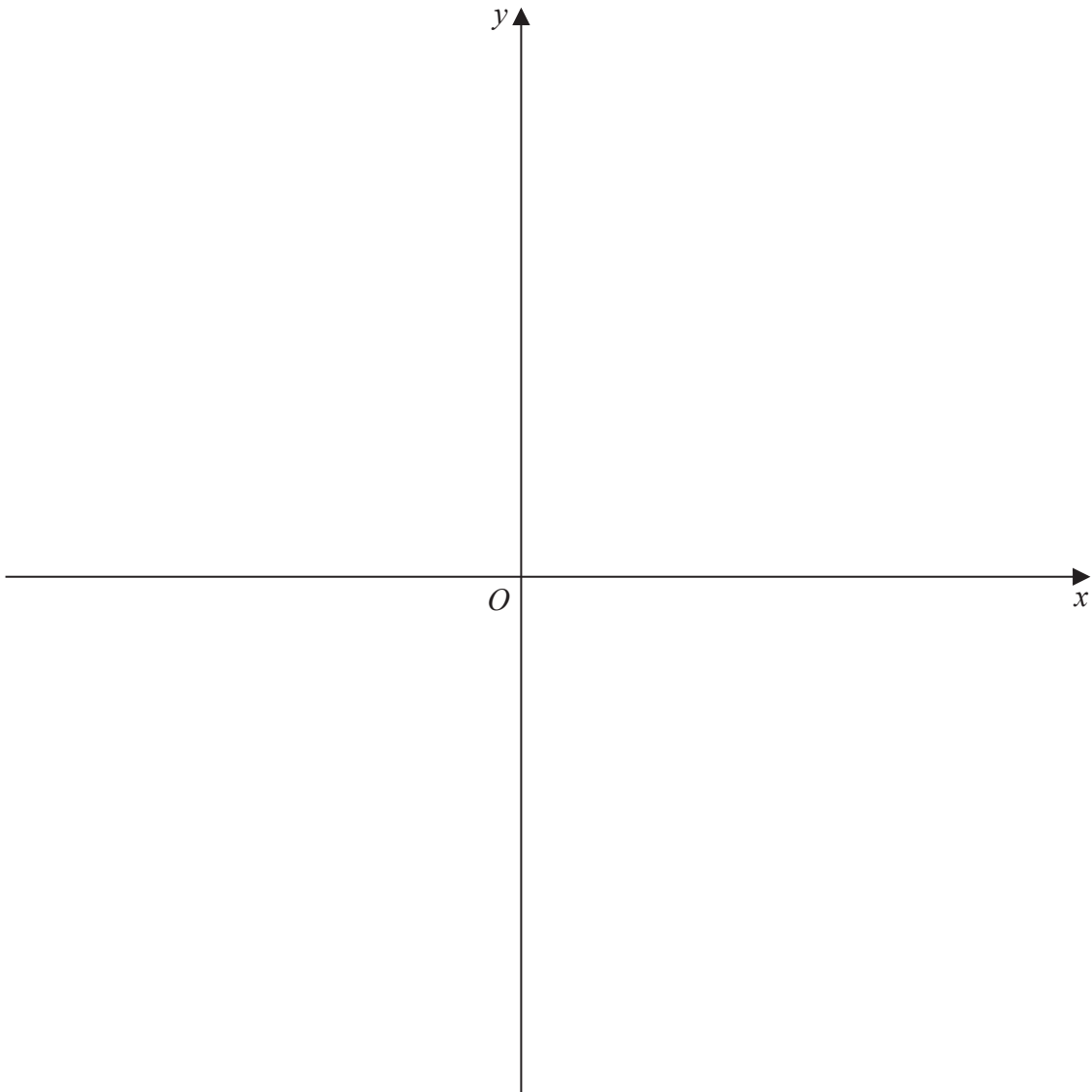
Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the y -axis.



(Total for Question 15 is 4 marks)



13 Sketch the graph of $x = y^2 + 2$



(Total for Question 13 is 2 marks)

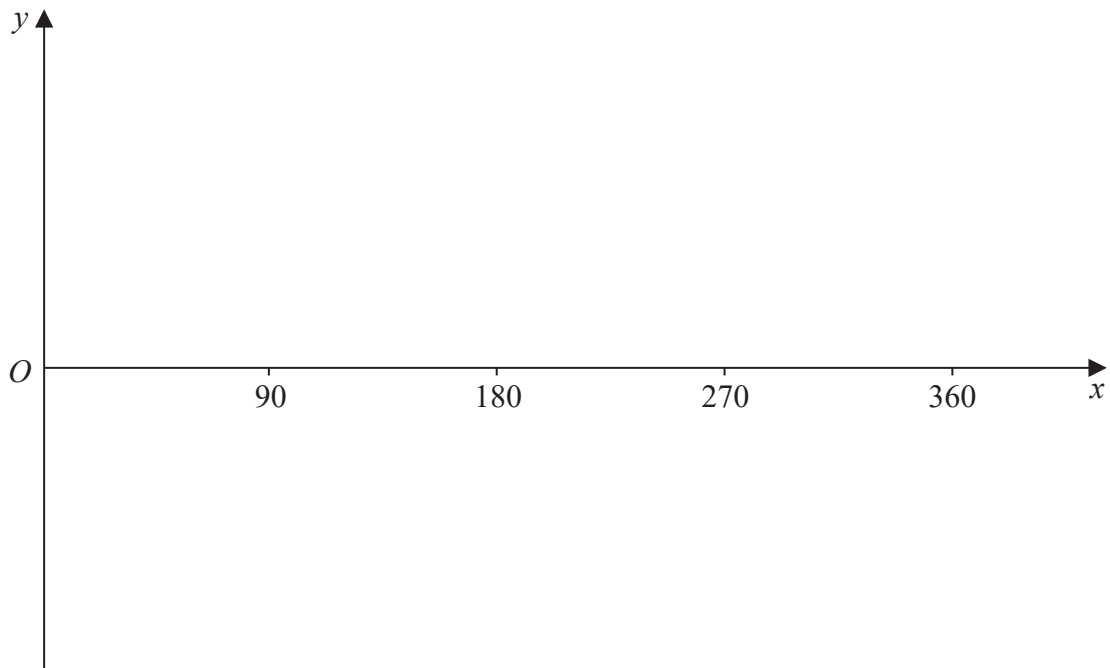
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19 Sketch the graph of $y = \sin x^\circ$ for $0 \leq x \leq 360$



(Total for Question 19 is 2 marks)

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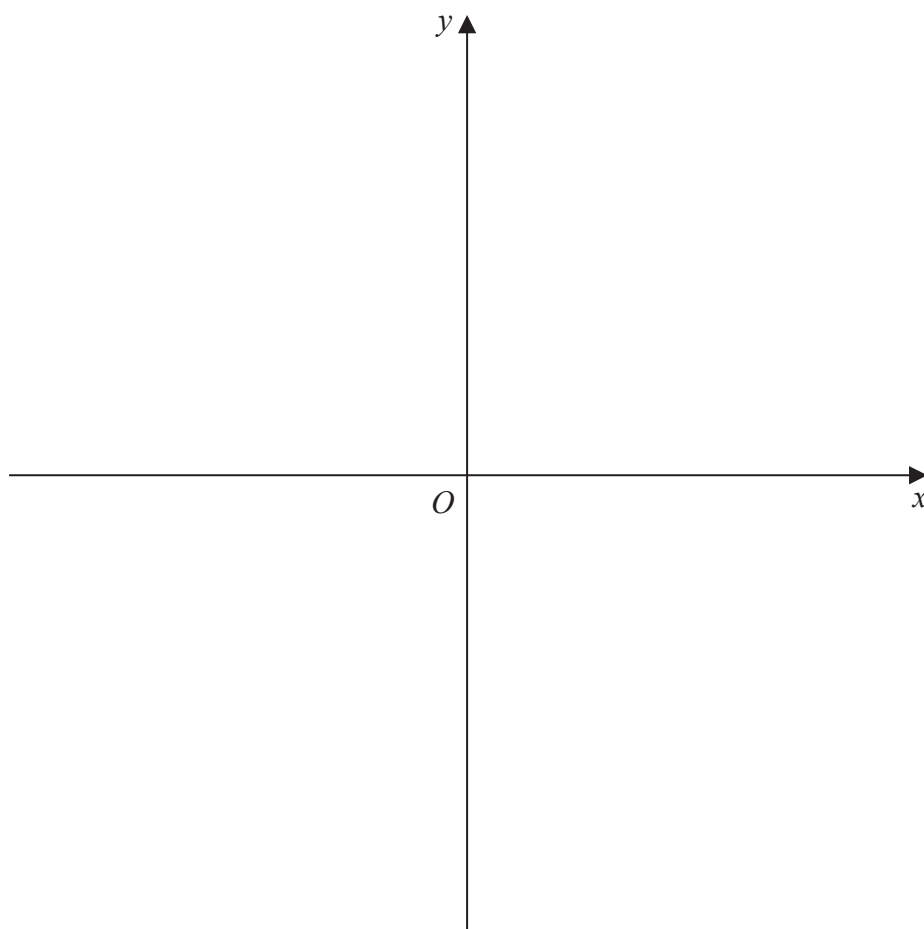
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P 6 9 3 0 7 A 0 2 1 2 4

15 Using the axes below, sketch the graph of $y = \frac{1}{1-x}$

Show clearly any asymptotes and the coordinates of any points of intersection of the graph with the axes.



(Total for Question 15 is 4 marks)

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