

Delta 3

Unit 6 Review (Calculator)

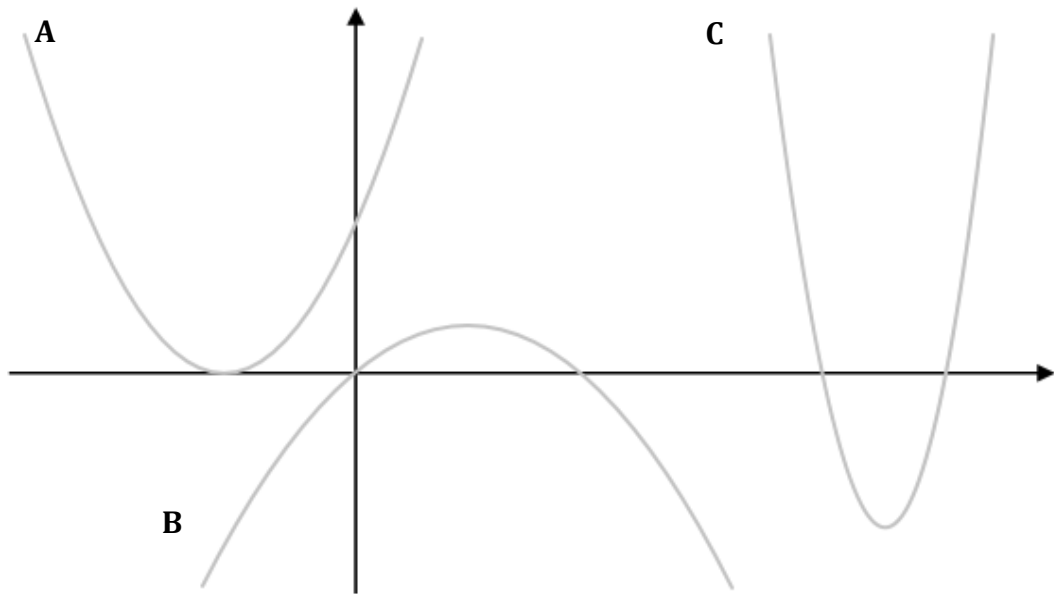
Non-linear Graphs

How well did you do:

Non-Linear Graphs	Score = $\frac{\quad}{40}$
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<i>Topics/skills which need to be revisited:</i>	<i>Question from the review</i>	<i>Further Practice from Delta 3</i>
- Understand and draw graphs of quadratics functions - Plot and draw graphs of quadratic functions - Identify quadratic graphs and their features - Identify quadratic graphs and their features - Identify quadratic graphs and their features - Solve problems using quadratic graphs	- Q2a,b,c - Q4a,b - Q1a,b,c,d - Q5a ii - Q 5d - Q7	- P135 Q4a,b,c - P136, Q8a,b - P143 Q2 - P 135 Q6, P140 Q5 - P135 Q3 - P136 Q7, P140 Q8
- Use quadratics graphs to solve equations - Use your direct proportion equation to find other values	- Q3a,b - Q4,c,d,e	- P132 Q1c, - P136 Q8c,d,e
Identify cubic graphs and their features	Q5ci,ii	P137 Q3
- Identify and interpret reciprocal functions - Draw graphs of reciprocal functions	- Q5a ii,e, - Q6	- P138 Q2 - P137 Q1

1 Look at these graphs and then complete the sentences below.



a These graphs of quadratic functions are also called

b Each curve has line of

c The turning points of graphs **A** and **C** are called points.

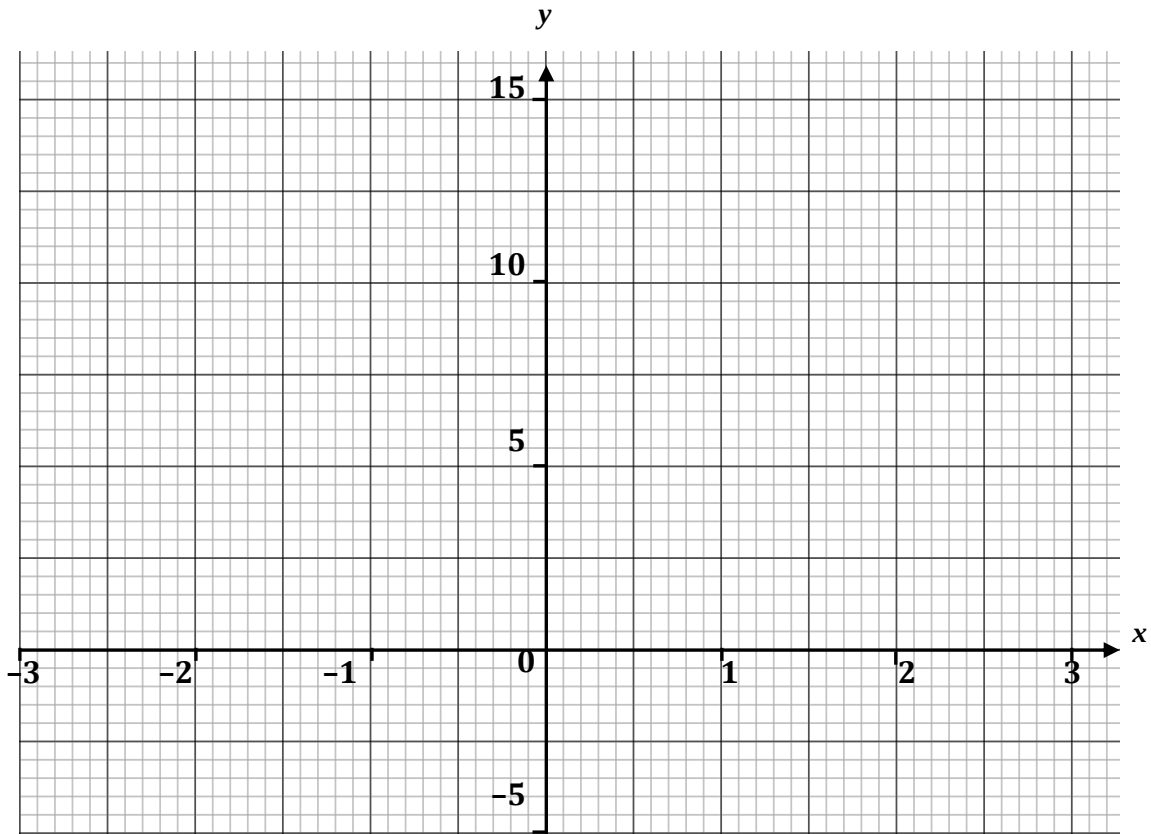
d The turning point of graph **B** is called a point.

(4 marks)

2 a Complete this table of values for the graph $y = 2x^2 - 3$

x	-3	-2	-1	0	1	2	3
y	15		-1			5	

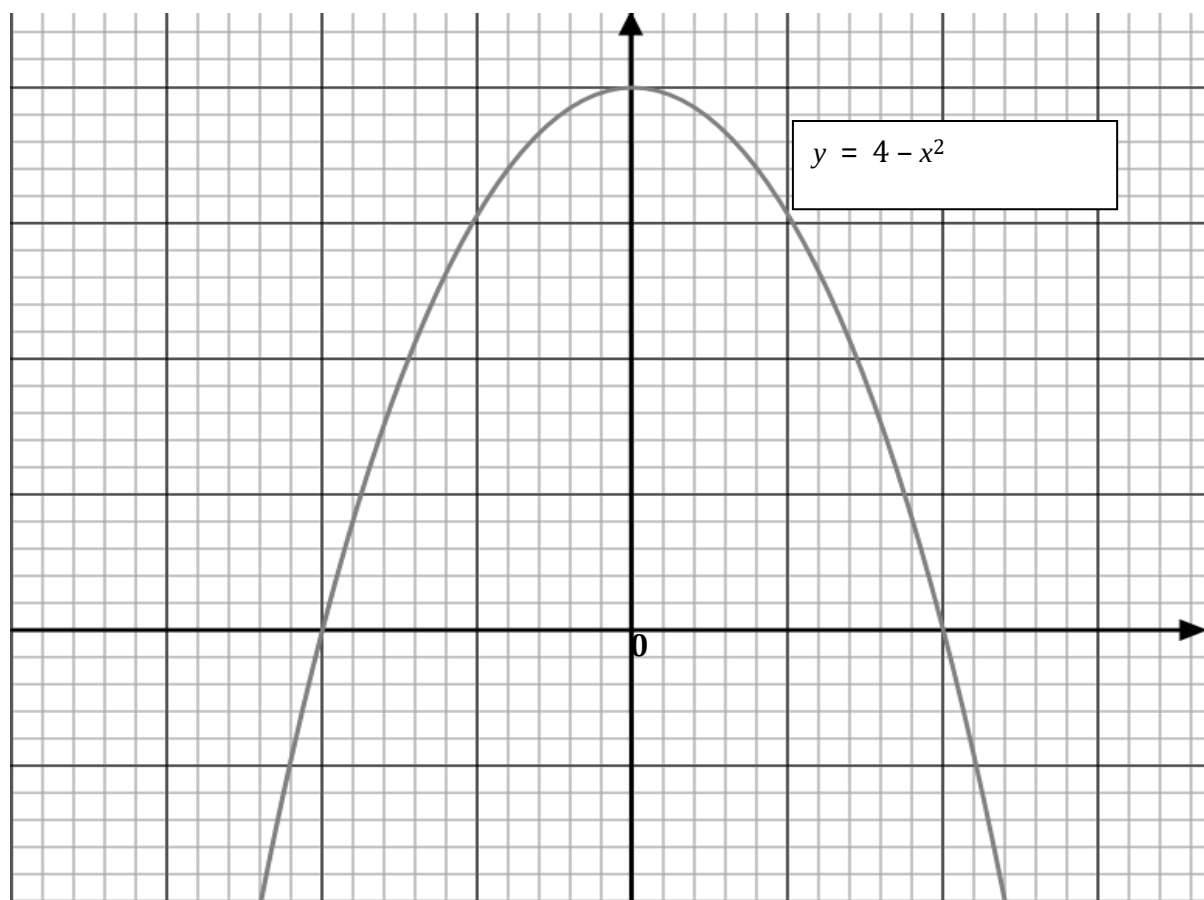
b Plot and draw the graph.



c What is the equation of the line of symmetry?

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(5 marks)

3 The graph shows the graph of $y = 4 - x^2$



Use the graph to solve these equations.

a $4 - x^2 = 0$

.....

b $4 - x^2 = 3$

.....

(4 marks)

4 a Complete this table of values for the graph of $y = x^2 - x - 6$

x	-3	-2	-1	0	1	2	3	4
y	6		-4		-6	-4		

b Plot and draw the graph using the graph paper *on the next page*.

c *Using the graph*, write down the solutions of $x^2 - x - 6 = 0$

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d Using algebra, factorise and solve the equation $x^2 - x - 6 = 0$

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e Explain the connection between your answers to parts c and d, giving a reason.

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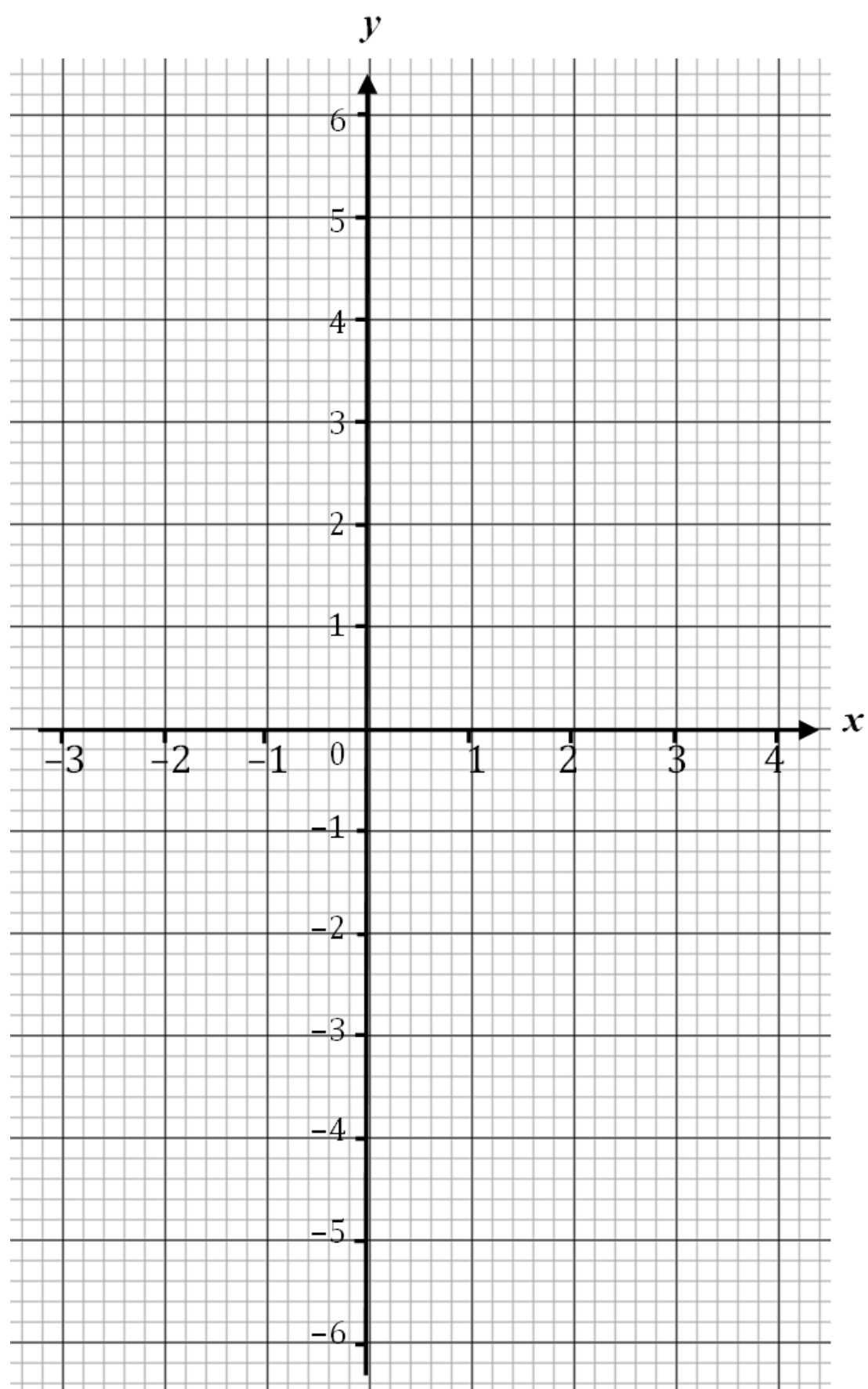
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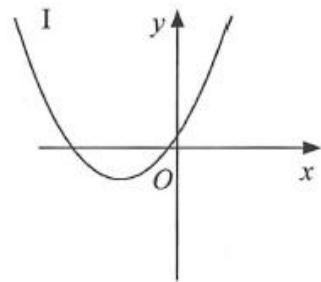
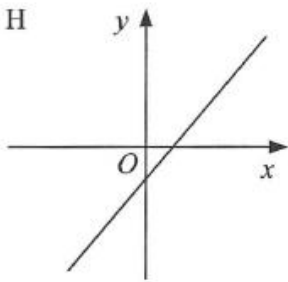
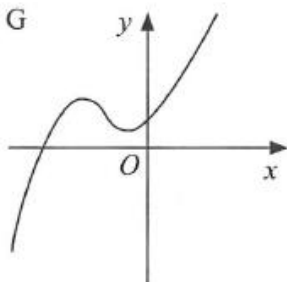
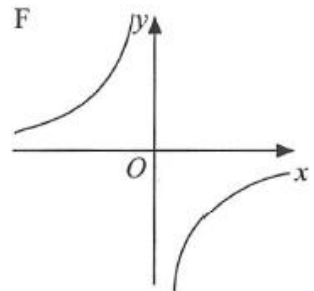
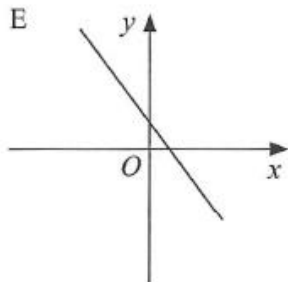
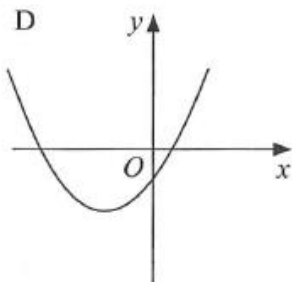
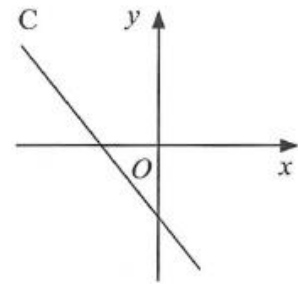
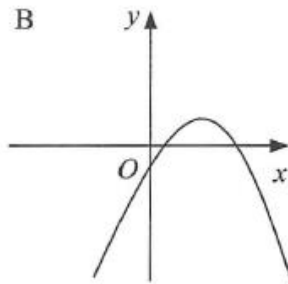
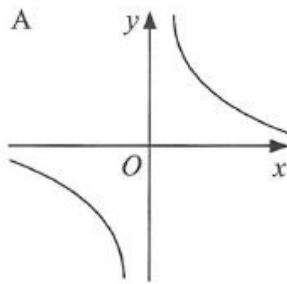
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(for question 4b)



5 a Look at the graphs below.



Write down the letter of the graph which could have the equation

(i) $y = \frac{2}{x}$

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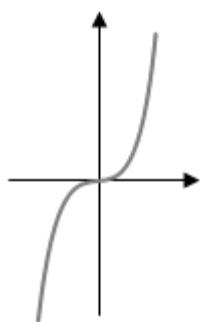
(ii) $y = 2x^2 + 7x + 3$

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b For graph A above, explain why does it not cross the y-axis?

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c For the graph below:



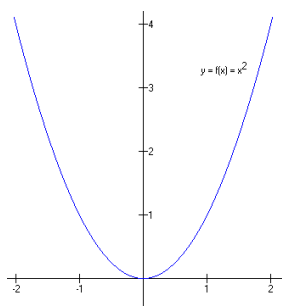
(i) what is the special name given to the point on the graph where it twists and turns (at the origin)?

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(ii) suggest a possible equation for the graph

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d The graph below is $y = x^2$. Describe what the graph of $y = 3x^2$ would look like in comparison.

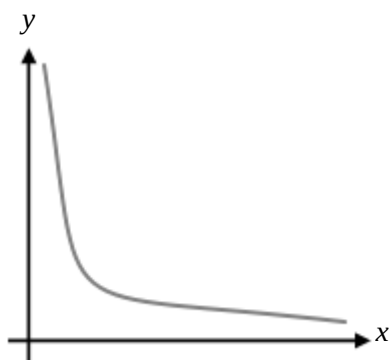


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e Describe a real-life situation which could be represented by this graph.



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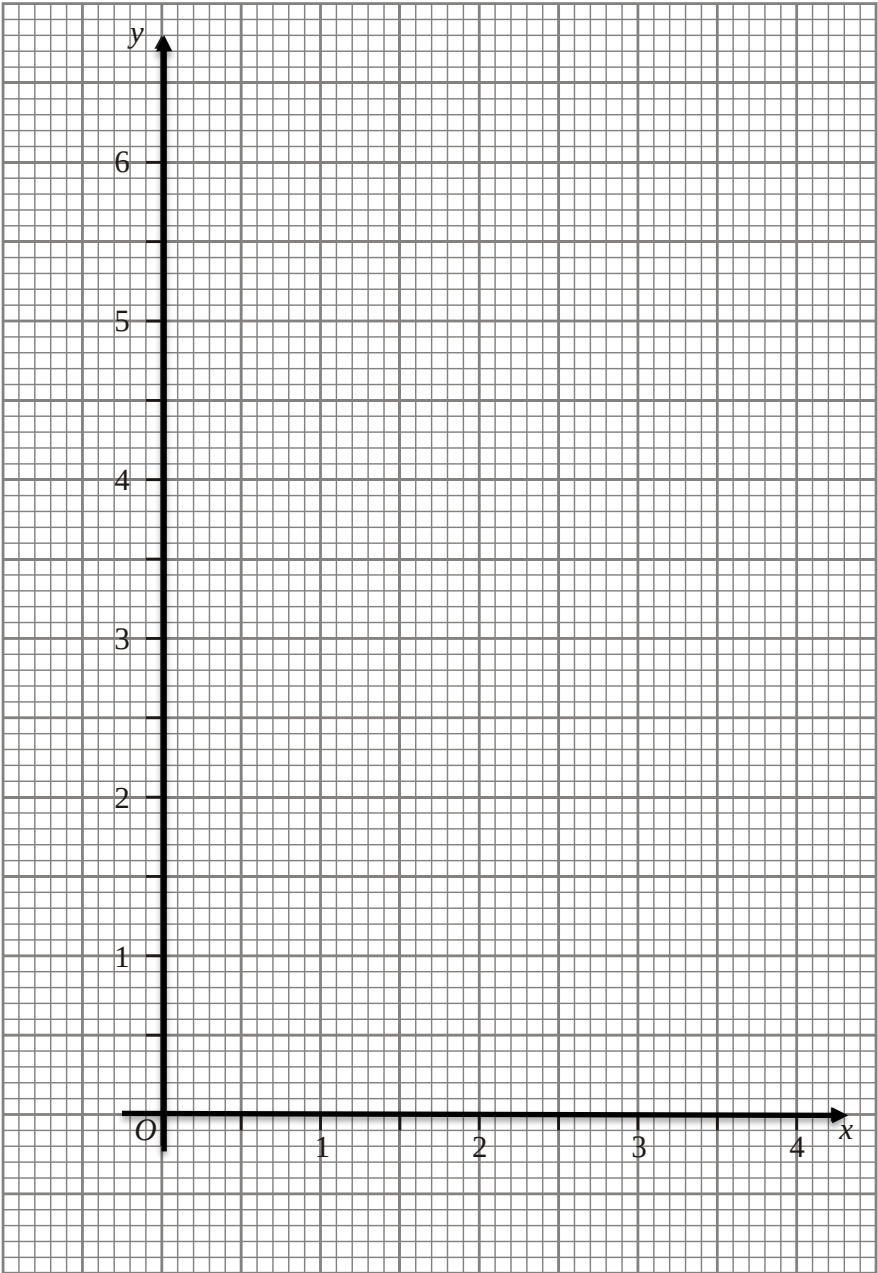
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(7 marks)

6. a Complete the table of values for $y = \frac{1}{x}$

x	0.2	0.4	0.8	1.0	2.0	4.0
y	5.0		1.25	1.0		

b On the grid, draw the graph of $y = \frac{1}{x}$ for $x \geq 0.2$

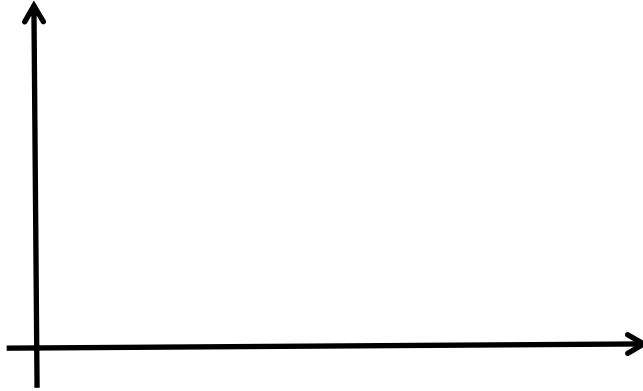


(4 marks)

7 The trajectory of a golf ball can be modelled by the equation

$$h = 10t - t^2 \quad \text{where } h \text{ is the height in feet and } t \text{ is the time in seconds}$$

a Sketch what the above function would look like, ensuring you label both axes.



b Use algebra to find the time taken for the ball to reach a height of 24 feet **for the first time**.

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(6 marks)

TOTAL = 40 MARKS