

GCSE Maths Quadratic and Other Graphs (Higher): check-up and exam-style questions: worksheet

GCSE Maths - Quadratic and Other Graphs - Higher - Test yourself

Name: _____

Date: _____

Score: _____

25 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch13-quadratic-other-graphs/higher/check-up-and-exam-style-questions/

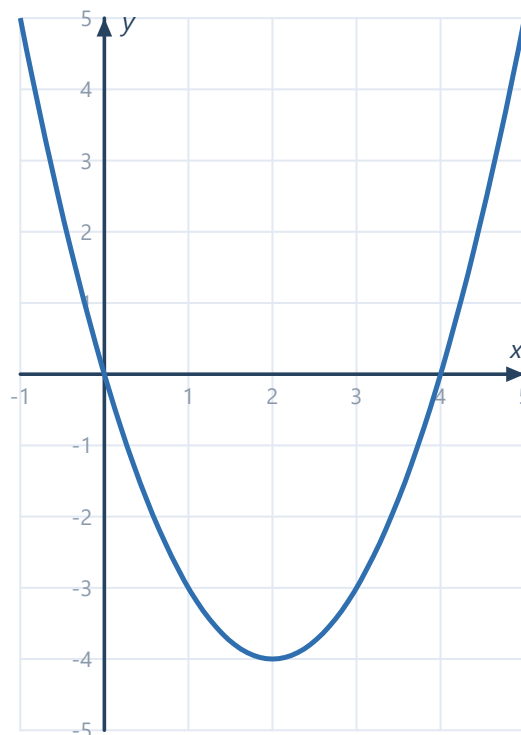
Exercise 13Z Check-up (non-calculator) Non-calculator

- 1 Complete the table of values for $y = x^2 - 3$.

x	-2	-1	0	1	2
y					

Answer:

- 2 Here is the graph of $y = x^2 - 4x$. Write down (a) the roots, (b) the coordinates of the turning point.



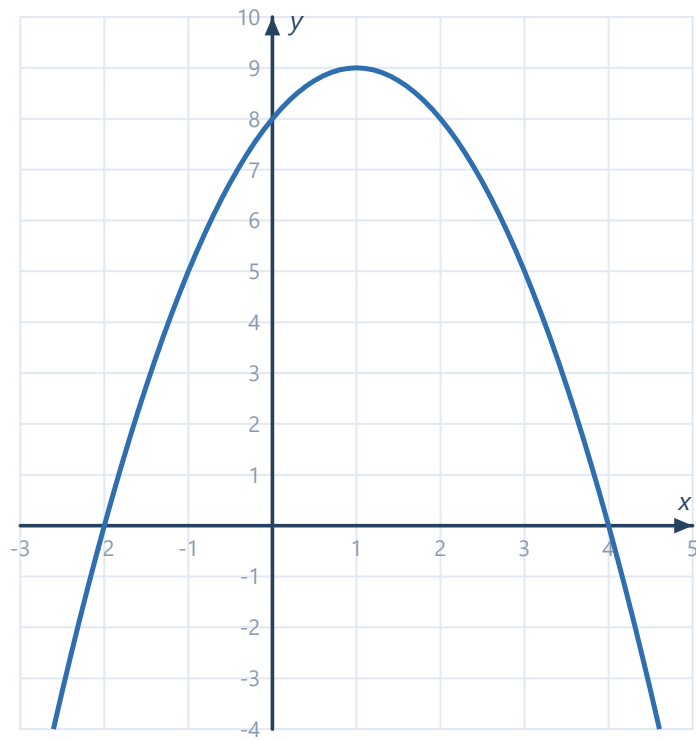
- (a) the roots

Answer:

- (b) the turning point

Answer:

- 3 Here is the graph of $y = 8 + 2x - x^2$. Write down (a) the y-intercept, (b) the equation of the line of symmetry, (c) the maximum value of y .



(a) the y-intercept

Answer:

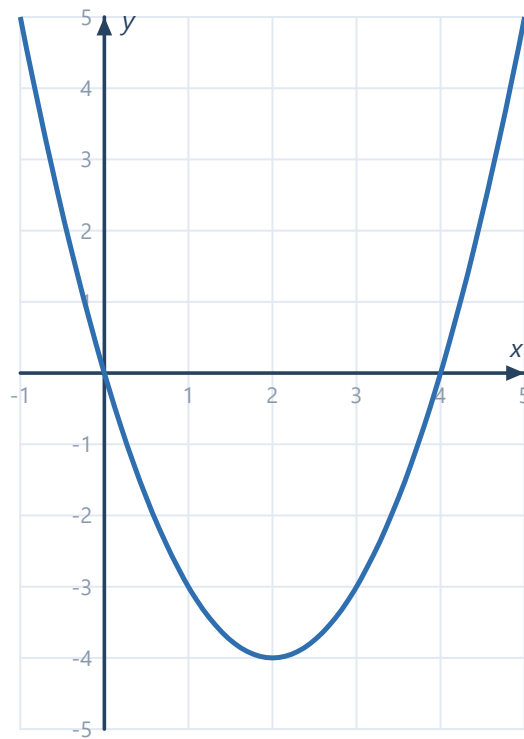
(b) the line of symmetry

Answer:

(c) the maximum value of y

Answer:

4 Use the graph of $y = x^2 - 4x$ (above) to solve $x^2 - 4x = 5$.



Answer:

5 Name the type of graph for each equation and say what its shape is.

(a) $y = x^3 + 1$

Answer:

(b) $y = -x^2$

Answer:

(c) $y = \frac{3}{x}$

Answer:

6 Complete the table of values for $y = x^3$.

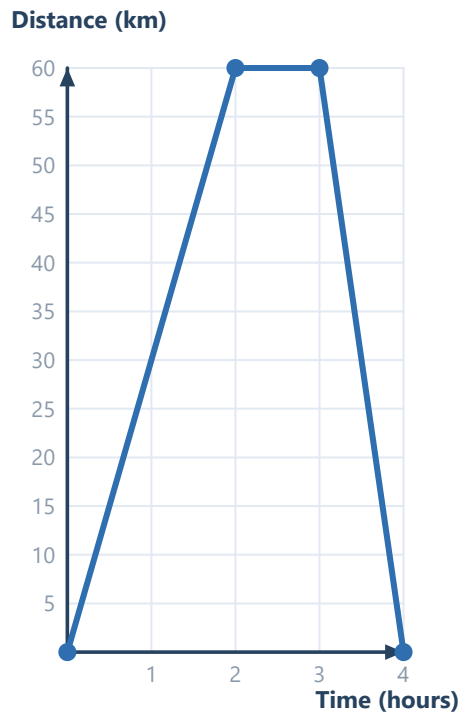
x	-2	-1	0	1	2
y					

Answer:

7 Work out the value of y when $x = -3$ for $y = 12 \div x$.

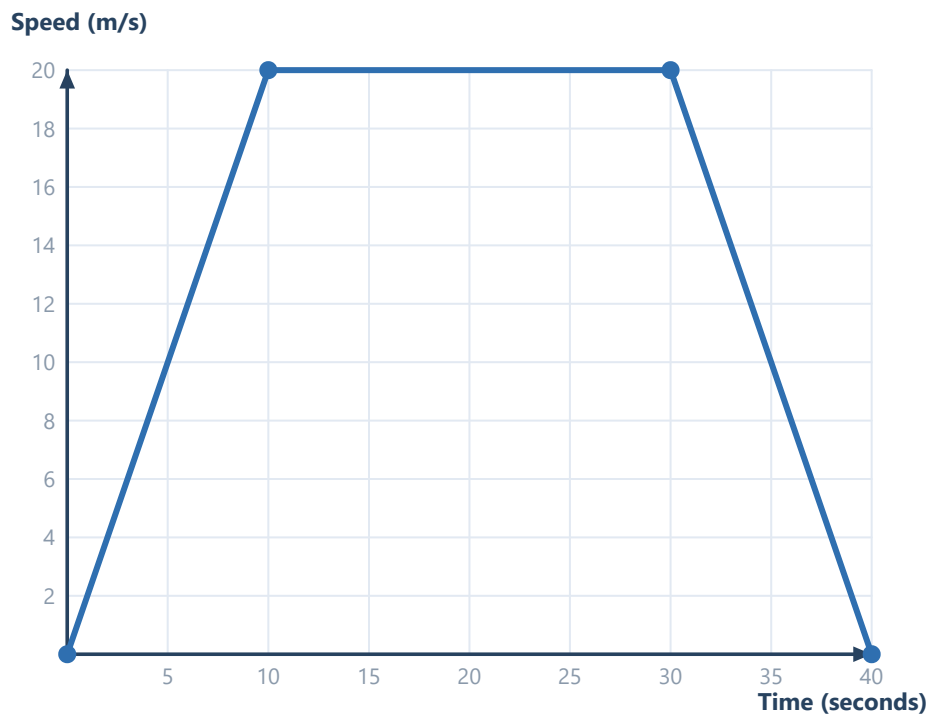
Answer:

8 Use the car journey graph to work out the speed on the way back (from 3 hours to 4 hours).



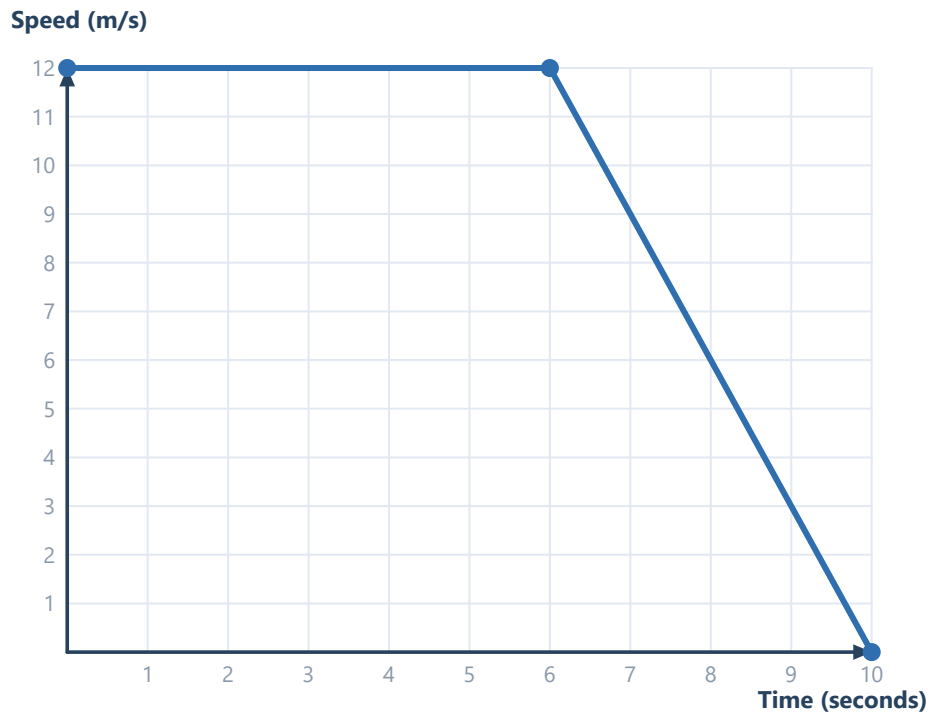
Answer:

- 9 Use the train's speed-time graph to work out its acceleration in the first 10 seconds.



Answer:

- 10 Use the lorry's speed-time graph to work out the total distance it travelled in 10 seconds.



Answer:

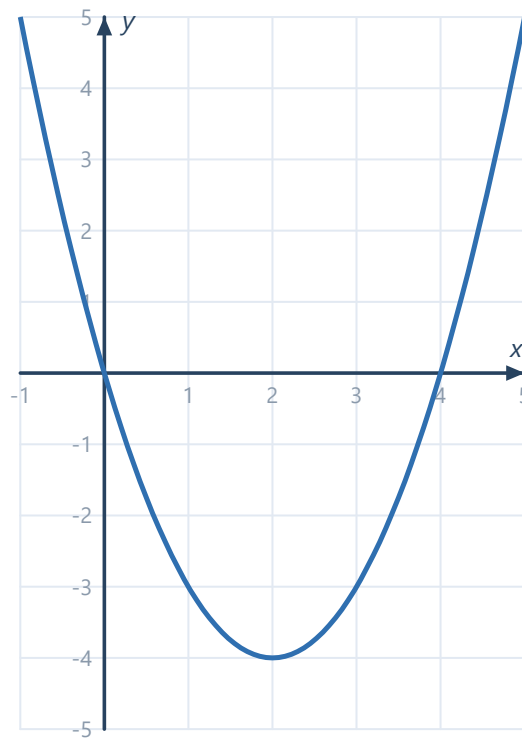
Exercise 13X Exam-style questions Non-calculator

- 1** (a) Complete the table of values for $y = x^2 - 4x + 1$. (b) On a grid, draw the graph of $y = x^2 - 4x + 1$ for values of x from -1 to 5 . (c) Write down the coordinates of the turning point of the graph. [4 marks]

x	-1	0	1	2	3	4	5
y		1		-3		1	

Answer:

- 2** The graph of $y = x^2 - 4x$ is shown. (a) Write down the roots of $x^2 - 4x = 0$. (b) Write down the equation of the line of symmetry. (c) Write down the coordinates of the turning point. [3 marks]



(a) the roots

Answer:

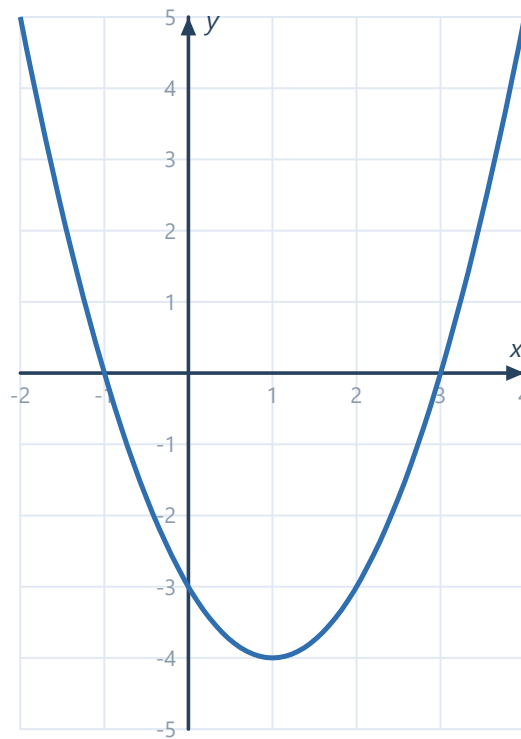
(b) the line of symmetry

Answer:

(c) the turning point

Answer:

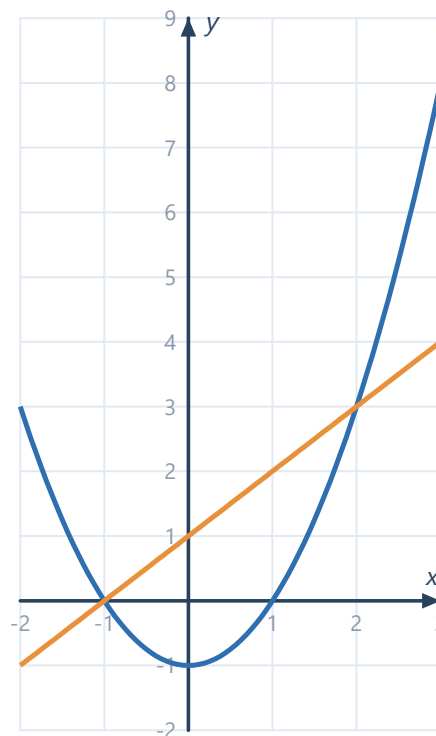
- 3** The graph of $y = x^2 - 2x - 3$ is shown. Use it to find estimates of the solutions of $x^2 - 2x - 3 = 2$. Give your answers to 1 decimal place. [3 marks]



Answer:

- 4 The graphs of $y = x^2 - 1$ and $y = x + 1$ are drawn on the grid. Use the graphs to solve $x^2 - 1 = x + 1$.

[3 marks]



Answer:

- 5 Here are four equations: A: $y = 4 - x$, B: $y = x^2 + 2$, C: $y = x^3$, D: $y = -4 \div x$. Write down the type of graph for each equation and describe its shape.

[4 marks]

(a) A: $y = -x + 4$

Answer:

(b) B: $y = x^2 + 2$

Answer:

(c) C: $y = x^3$

Answer:

(d) D: $y = -\frac{4}{x}$

Answer:

- 6 (a) Complete the table of values for $y = x^3 - x$. (b) Draw the graph of $y = x^3 - x$ for x from -2 to 2 .

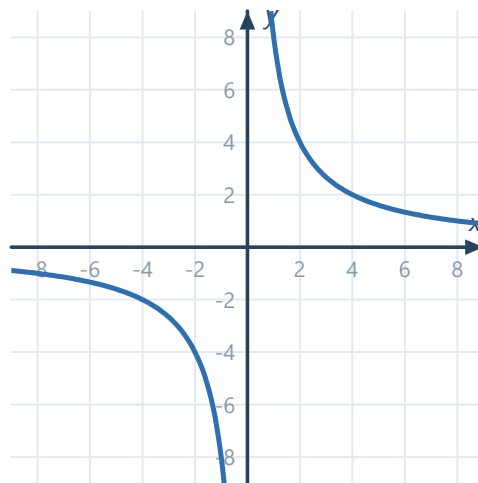
[4 marks]

x	-2	-1.5	-1	-0.5	0	0.5	1	1.5	2
y		-1.875		0.375		-0.375		1.875	

Answer:

- 7 The graph of $y = 8 \div x$ is shown. Use it to find the value of x when $y = 3.2$.

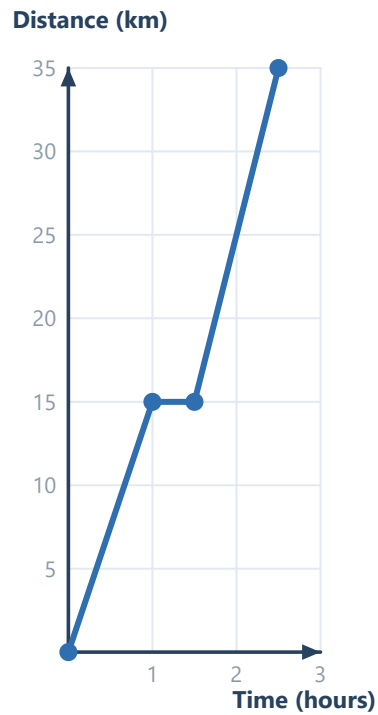
[2 marks]



Answer:

- 8 The graph shows a cycle ride. (a) Work out the speed in the first hour. (b) For how long did the cyclist stop? (c) Work out the average speed for the whole ride.

[4 marks]



(a) the speed in the first hour

Answer:

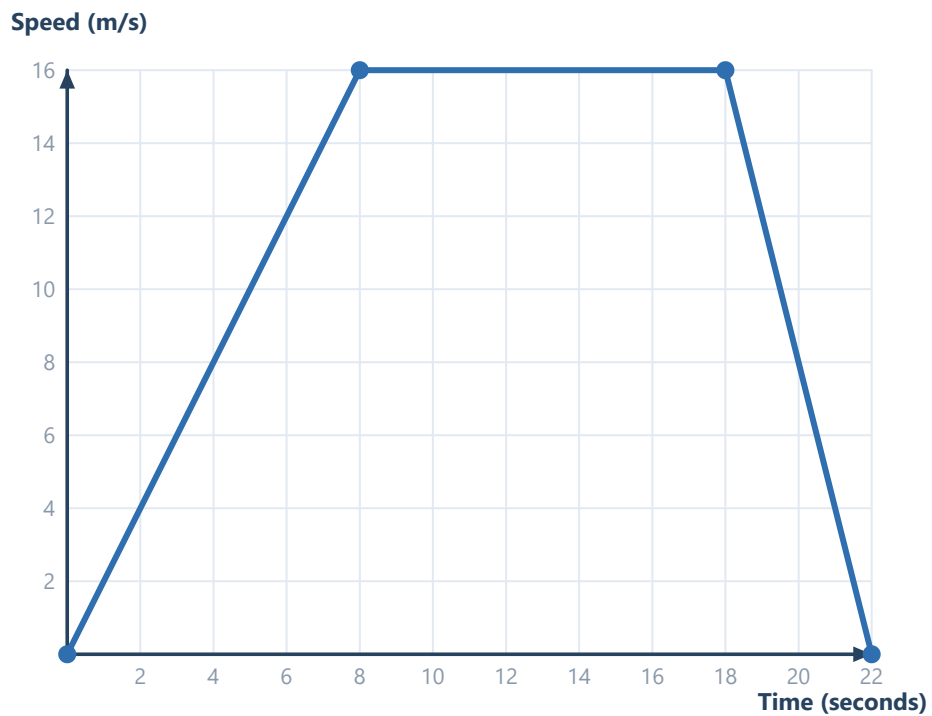
(b) how long the cyclist stopped

Answer:

(c) the average speed

Answer:

- 9** The speed-time graph shows a car. (a) Work out the acceleration in the first 8 seconds. (b) Work out the total distance travelled by the car. [5 marks]



(a) the acceleration

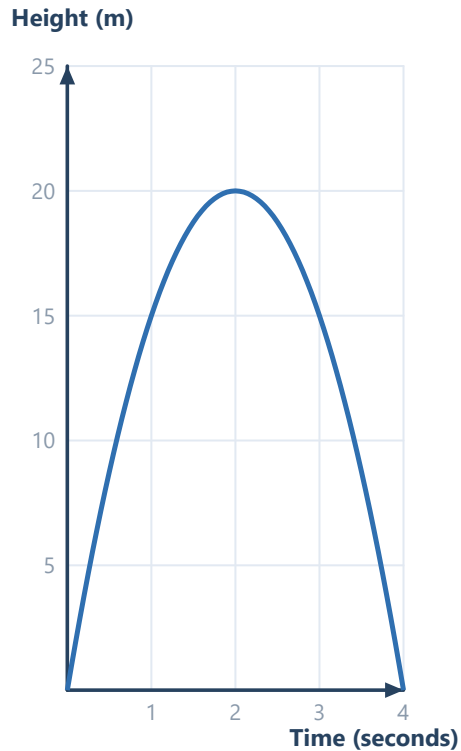
Answer:

(b) the total distance

Answer:

- 10** The graph shows the height of a ball thrown upwards, $h = 20t - 5t^2$. (a) Write down the greatest height of the ball. (b) Find the times when the ball is 15 m above the ground. (c) For how long is the ball in the air?

[3 marks]



(a) the greatest height

Answer:

(b) the times at 15 m

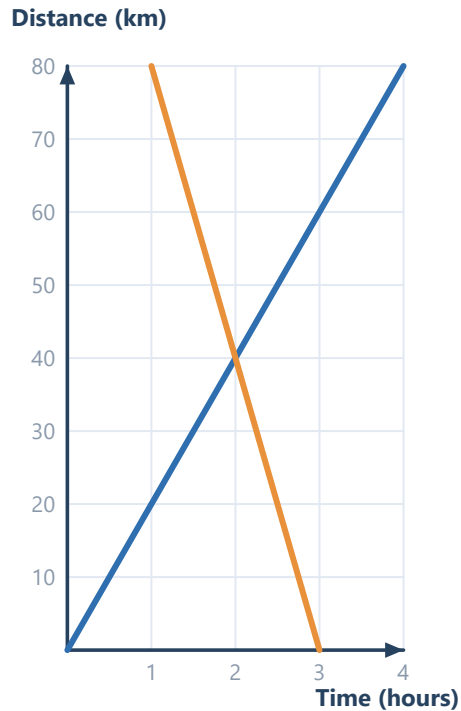
Answer:

(c) time in the air

Answer:

- 11** Priya cycles from A to B, 80 km, at a steady speed. Quinn leaves B one hour later and travels towards A. Use the graph to find (a) when they meet, (b) how far from A they meet.

[3 marks]



(a) when they meet

Answer:

(b) how far from A

Answer:

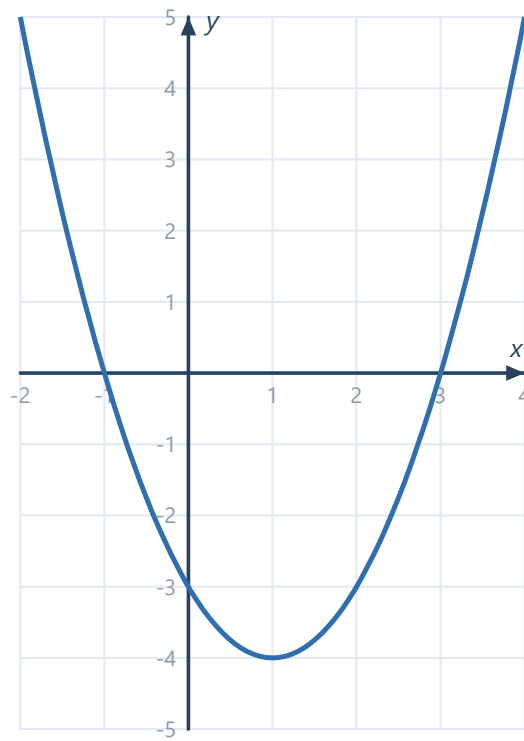
- 12** Sketch the graph of $y = x^2 - 2x - 8$. Show the coordinates of the points where the graph crosses the axes and of the turning point. [4 marks]

Answer:

- 13** (a) Write $x^2 + 8x + 3$ in the form $(x + p)^2 + q$. (b) Write down the coordinates of the turning point of the graph of $y = x^2 + 8x + 3$. [3 marks]

Answer:

- 14** The graph of $y = x^2 - 2x - 3$ is shown. By drawing a suitable straight line on the grid, find estimates of the solutions of $x^2 - x - 5 = 0$. [4 marks]



Answer:

15 Solve $x^2 - 4x + 1 = 0$ by completing the square. Give your answers in the form $a \pm \sqrt{b}$.

[3 marks]

Answer:
