

Check out

You should now be able to ...

✓ Plot graphs of linear functions and find gradients.	7	1, 2
✓ Find the equation of straight-line graphs.	7	3, 4
✓ Recognise and plot graphs of simple quadratic functions.	8	5
✓ Recognise and plot graphs of cubic functions.	8	5
✓ Plot and interpret distance-time graphs.	7	7
✓ Plot and interpret real-life and time series graphs.	7	8
✓ Read and interpret exponential and reciprocal graphs.	8	9

Test it

Questions

✓ Plot graphs of linear functions and find gradients.	7	1, 2
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Language

Meaning

Example

Gradient	A mathematical measure of the steepness of a line.	The gradient of the line between (0, 0) and (4, 2) is $\frac{1}{2}$
Line segment	A line between two set points.	The straight line between (0, 0) and (4, 2) is a line segment
Straight-line graph	A line joining a set of points set by a linear equation.	$y = 2x + 4$ is a straight-line graph
Quadratic function	A function where the highest power of x is 2.	$y = x^2 + 2x + 4$
Cubic function	A function where the highest power of x is 3.	$y = x^3 - x^2 + 2x + 4$
Time series	A graph showing how a measurement changes over time.	A patient's temperature chart is a time series
Exponential	A sequence that increases using a power of a number.	1, 2, 4, 8, 16, 32...

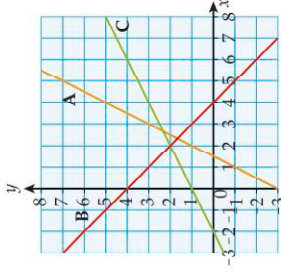
1 Find the gradient of the straight line through the points (1, -2) and (-3, -4).

2 Find the gradient and the y-intercept of the straight lines with these equations.

a $y = \frac{x}{4}$ b $y = 10 - 7x$

c $y = -4(7 - 2x)$ d $8x + 2y = 10$

3 Find the equations of each of these straight lines.



4 Give the equation of a graph that is parallel to $y = 3x - 1$.

5 a Plot the graph of $y = x^2 + 2x - 1$ for values of x from -4 to 2.

b Write the equation of the line of symmetry of the curve.

c State the coordinates of the minimum

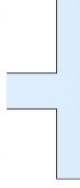
point on the curve.

6 Copy and complete the table of values for the cubic function $y = 4x - x^3$. Use your values to plot the graph of the function.

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

7 A man walks away from his home at a speed of 1.5 m/s for 20 minutes, then turns around and runs home at a speed of 4 m/s. Draw a distance-time graph to show his journey.

8 Water is flowing into this container at a constant rate. Sketch a graph to show the depth of water against time.



9 a Draw the graph of $y = \frac{4}{x}$ and use your graph to approximate the value of x for which $y = 1.9$.

b Draw the graph of $y = 3^x$ and use it to estimate the solution to $3^x = 10$.

What next?

0 - 4	Your knowledge of this topic is still developing. To improve look at Formative test: 3C-6; MyMaths: 1153, 1168, 1184, 1312, 1314, 1316, 1322 and 1939
5 - 7	You are gaining a secure knowledge of this topic. To improve look at InvisiPen: 263, 265, 271, 272, 273, 274, 275 and 278
8 - 9	You have mastered this topic. Well done, you are ready to progress!

Score