

Gradient of a Line

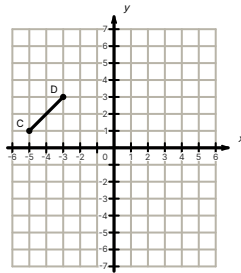
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NAME _____

DATE _____

- 1 The grid shows the points $C(-5, 1)$ and $D(-3, 3)$.

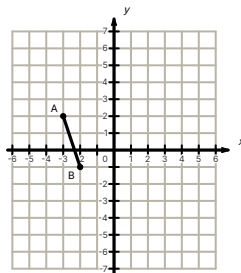
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Find the gradient of the line CD .

- 2 The line through $A(-3, 2)$ and $B(-2, -1)$ is drawn on the grid.

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Calculate the gradient of the line.

- 3 A straight line has equation $y = -x - 7$

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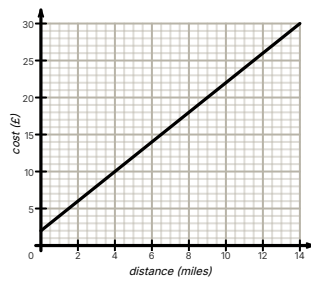
(a) Write down the gradient of the line.

(b) Write down the coordinates of the point where the line crosses the y -axis.

- 4 A taxi firm charges a fixed amount for every journey, plus an extra amount for each mile travelled.

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The graph shows the cost of a journey of up to 14 miles.



- (a) State the amount the taxi firm charges before it has travelled any distance at all.
- (b) Work out the gradient of the line.
- (c) Write down what the gradient tells you about the cost of a journey.

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- 5 A straight line passes through $(-2, 5)$ and $(2, k)$.

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The gradient of the line is -3 .

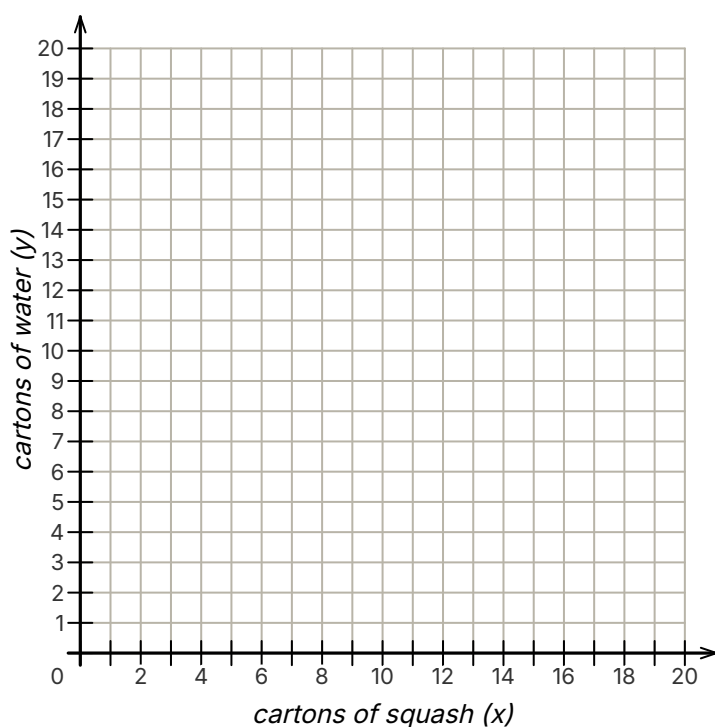
Find the value of k .

- 6 A cafe makes a drink from orange squash and water.

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The number of cartons of water (y) : the number of cartons of squash (x) = 3 : 2

- (a) Use this information to draw a graph on the grid to show the relationship between the number of cartons of squash and the number of cartons of water.



- (b) Find the gradient of the line drawn in part (a).
(c) Explain what this gradient represents.

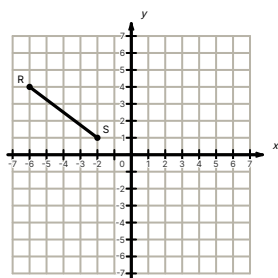
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- 7 The line L has equation $y = -x - 1$

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Work out the equation of the line that is parallel to L and passes through the point $(4, 6)$.

- 8 The points R and S are marked on the grid.

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Work out the gradient of the line RS .

Give your answer as a fraction in its simplest form.

- 9 A is the point $(5, -9)$.

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B is the point $(8, -15)$.

(a) Show that the gradient of the straight line passing through A and B is -2 .

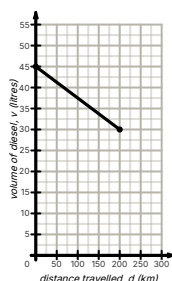
(b) C is the point $(264, -528)$.

Does C lie on the straight line passing through A and B ?

You must show your working.

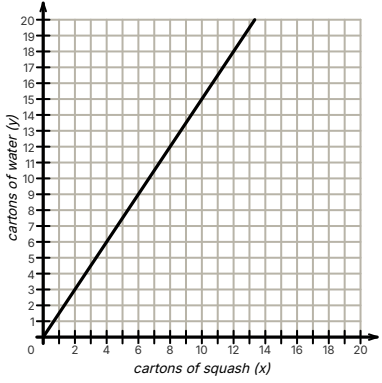
- 10 The graph gives information about the volume, v litres, of diesel in the tank of Anya's car after it has travelled a distance of d kilometres.

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(a) Calculate the gradient of the graph.

(b) What does the gradient of the graph represent?

1	1	2	-3
3	(a) -1 (b) (0, -7)	4	(a) £2 (b) 2 (c) The taxi firm charges £2 for each extra mile travelled.
5	-7	6	(a) A straight line through (0, 0), (2, 3) and (4, 6) (b) $\frac{3}{2}$ (c) The number of cartons of water needed for 1 carton of squash (a) 
7	$y = -x + 10$	8	$-\frac{3}{4}$
9	(a) $\frac{-15 - (-9)}{8 - 5} = \frac{-6}{3} = -2$ (b) No: the line gives $y = -527$ at $x = 264$, and C has $y = -528$	10	(a) -0.075 litres per km (b) The diesel used per kilometre travelled (the rate of decrease of the volume): the tank loses 0.075 litres of diesel for every 1 km driven.