

Linear Graphs

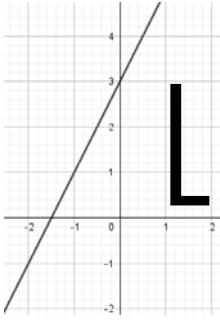
Card 1: Copy out the tables below and work out what goes in each cell.

$$y=6x+7$$

x	-5	-3	0	3	5	10
y						

$$y=6x - 7$$

x	-5	-3	0	3	5	10
y						



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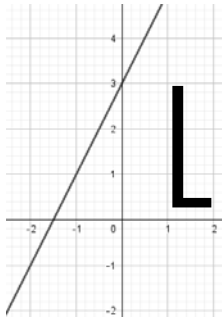
Card 2: Copy out the tables below and work out what goes in each cell.

$$y = -3x + 7$$

x	-5	-3	0	3	5	10
y						

$$y = 5x - 7$$

x	-5	-3	0	3	5	10
y						



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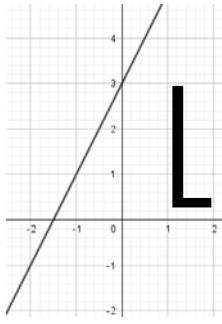
Card 3: Copy out the tables below and work out what goes in each cell.

$$y = \frac{3}{5}x + 5$$

x	-5	-3	0	3	5	10
y						

$$3y = \frac{8}{9}x + 3$$

x	-5	-3	0	3	5	10
y						



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Card 4: Look at the following equations for graphs. For each one, copy out the following sentence and fill in the blanks:

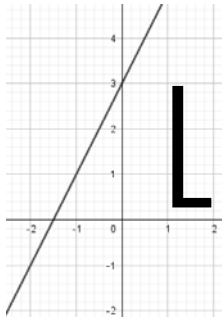
$$y = 5x + 6$$

$$7y = 6x + 7$$

$$y = \frac{3}{4}x - 12$$

$$3y = 7 - x$$

For the equation, _____, the gradient, m , is _____ and the intercept, c , is _____.



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Card 5: Look at the following equations for graphs. For each one, copy out the following sentence and fill in the blanks:

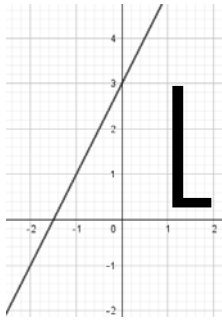
$$y = 3x + 4$$

$$7y = 14x + 21$$

$$y = \frac{7}{4}x - 3$$

$$3y = 8 - 2x$$

For the equation, _____, the gradient, m , is _____ and the intercept, c , is _____.



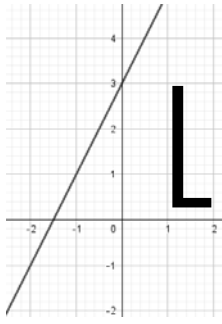
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Card 6: Write the equations in the form,
 $y=mx+c$.

- Gradient of 8 and goes through the point (0,6).
- Slope of 5 and goes through point (0,8).
- Slope of 7 and goes through the point (0,3).
- Gradient of -3 and goes through the point (0,-6).

Copy and complete the following sentence in your books:

If the gradient is positive, then the slope goes from bottom left to _____ . If the gradient is negative, then the slope goes from _____ to _____ .



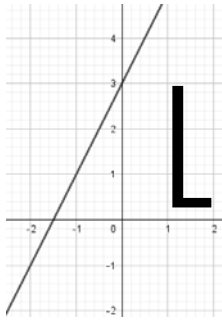
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Card 7: Use the working below to find the gradient of the line between each of the two points.

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

- a. (5,8) and (9,14)
- b. (7,-3) and (11,9)
- c. (-8, -9) and (-3, 12)
- d. (-6,7) and (8,-5)

Make sure you begin each of these questions with the formula at the top.



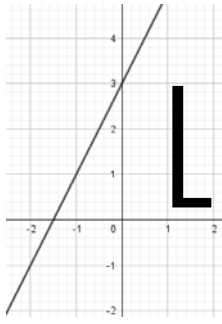
Linear Graphs

Card 8: Use the working below to find the gradient of the line between each of the two points.

$$m = \frac{\Delta y}{\Delta x} = \frac{y_2 - y_1}{x_2 - x_1}$$

- a. (5,-8) and (9,17)
- b. (-7,-3) and (11,-9)
- c. (8, 9) and (-3, -12)
- d. (-6,11) and (-3,-7)

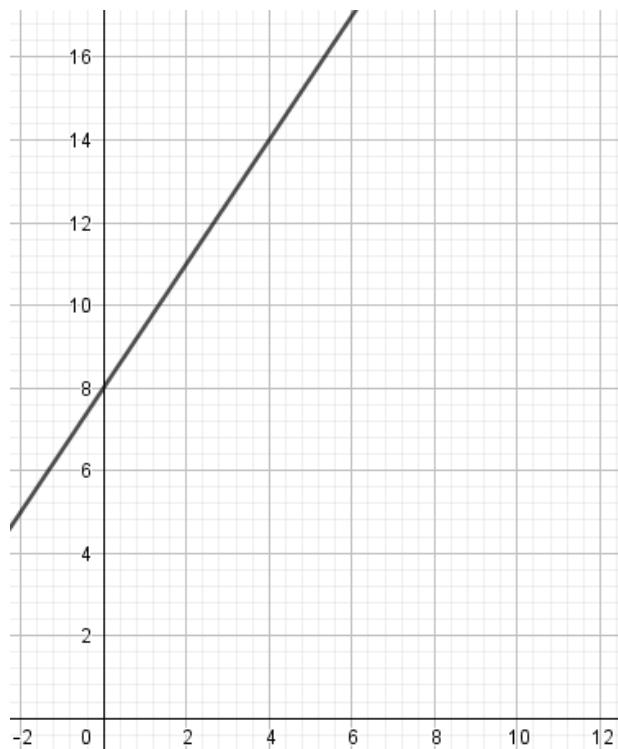
Make sure you begin each of these questions with the formula at the top.

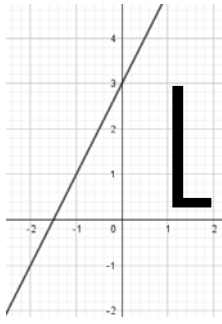


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Card 9: Phone calls cost £ y for x minutes. The graph gives the values of y for values of x from 0 to 6.

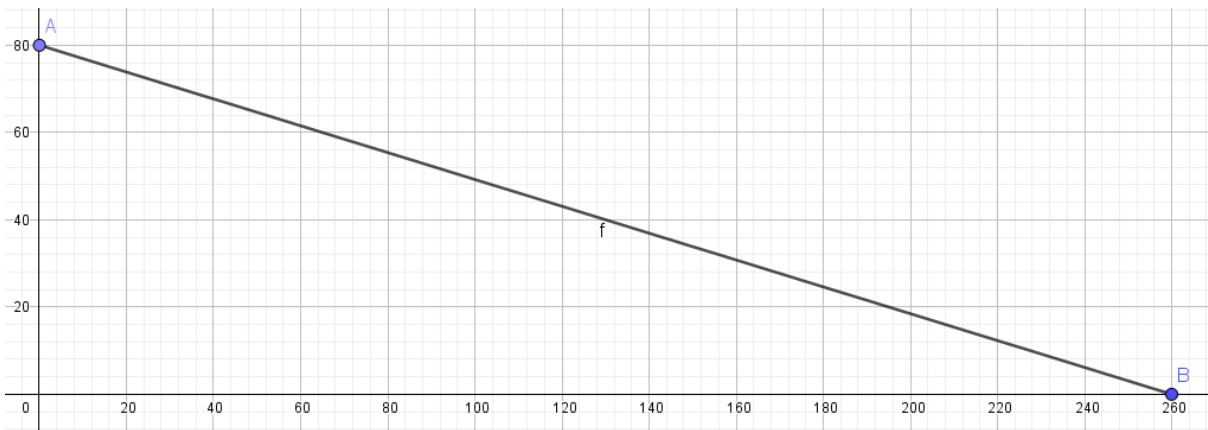
- i) Give an interpretation of the intercept of the graph in this context.
- ii) Give an interpretation of the gradient of the graph.
- iii) Find an equation of the form, $y=mx+c$, for the straight line.



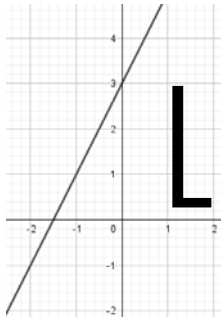


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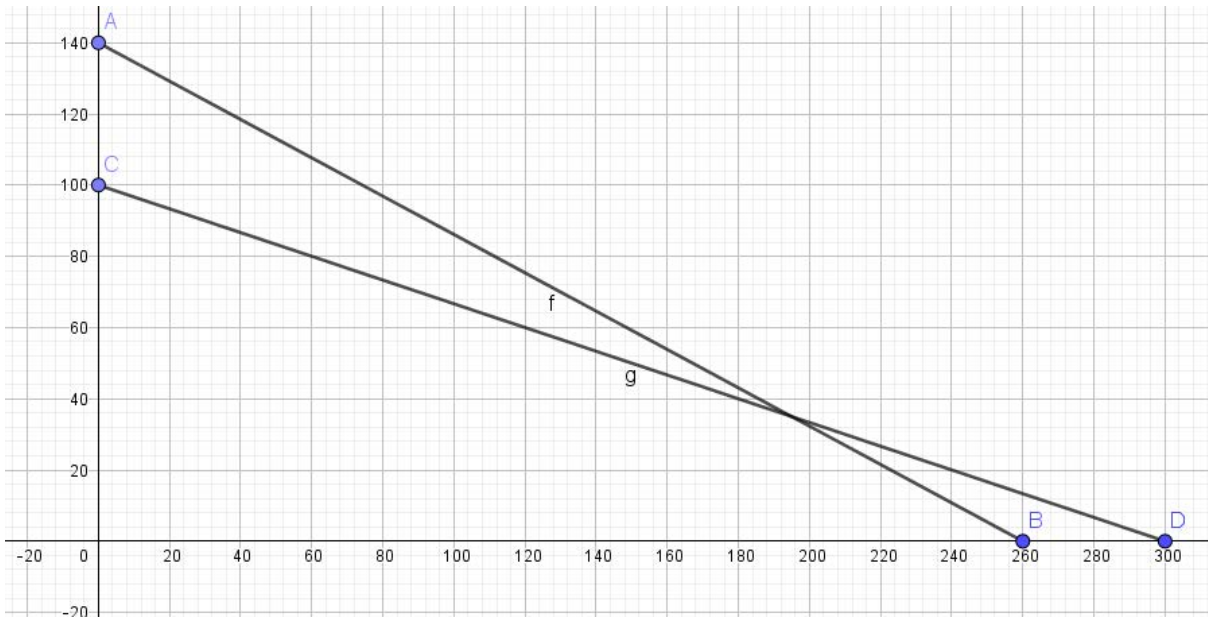
Card 10: The graph shows the depth, d cm of water in a tank after t seconds.



- i) Find the gradient of this graph.
- ii) Explain what the gradient represents.

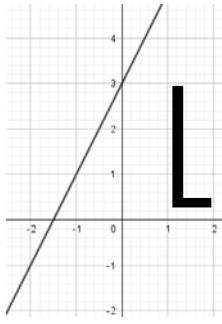


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Card 11: Two large tanks contained water. The depth, d cm, of each tank is shown on the graph above.

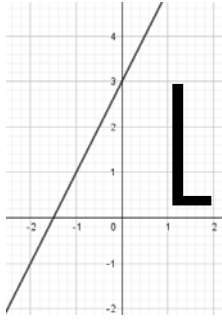
- i. Which tank contained the most water after two minutes?
- ii. Which tank might have had the larger hole? How do you know?
- iii. Find the gradient of each graph.
- iv. Explain what the gradient represents.



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Card 12: Find a graph that is parallel to this graph and goes through point (5,8):

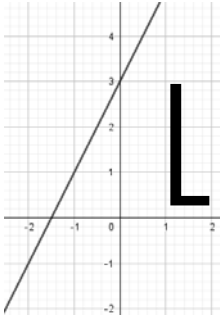
$$2y + 7 = 6x$$



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Card 13: Find a graph that is parallel to this graph and goes through point (5, 7).

$$2y + 7 = 6x$$



Linear Graphs

Card 14: Give the gradient of a line that is perpendicular to the ones shown below:

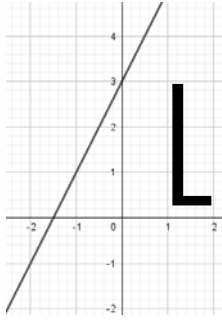
$$y = 5x + 8$$

$$3y + 7x = 60$$

$$\frac{4}{3}y - 2x = 84$$

Remember that a gradient to a line that is perpendicular to it yields

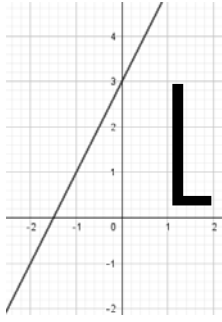
$$m_1 \times -\frac{1}{m_2} = -1$$



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Card 15: Give the equation of a line that goes through the following points:

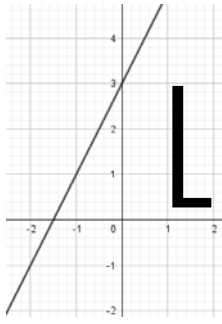
- 1 (5, 8) and (-3, 11)
- 2 (8,19) and (12,17)
- 3 (-3,23) and (18,-2)



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Card 16: Work out the gradient of each of these graphs:

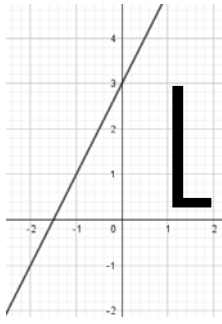
- i $4y = 12x + 7$
- ii $3y + 8x = 14$
- iii $7x + 6y = 20$
- iv $12x + 2y = 31$



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Card 17: Work out the intercept for the following graphs going through the points mentioned.

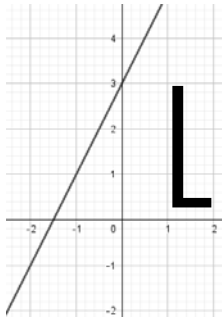
- 1) $y=6x + c$ $(-5, 8)$
- 2) $y=3x + c$ $(7,-9)$
- 3) $y=2x + c$ $(8, 9)$



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Card 18: Work out the intercept for the following graphs going through the points mentioned.

- 1) $y=4x + c$ $(-3, 8)$
- 2) $y=7x + c$ $(2,-9)$
- 3) $y=9x + c$ $(1, 9)$



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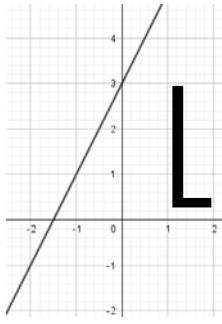
Card 19: Find the equation of the lines that are perpendicular to the following graphs and go through the points mentioned:

1 $y = 8x - 5$ (9, 12)

2 $y = -7x + 9$ (12, 17)

3 $3y = 15x + 6$ (13, 18)

4 $y = \frac{3}{4}x - 8$ (-14, -11)



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Card 20: Find the equation of the lines that are perpendicular to the following graphs and go through the points mentioned:

1 $y = x - 5$ (9,12)

2 $5y = -\frac{3}{5}x + 9$ (12, 17)

3 $3y = \frac{7}{8}x + 12$ (13, -18)

4 $y = \frac{3}{4}x - \frac{2}{3}$ (-14,-11)