



Timester Challenge

Equation of a Line



<p>The line $y = 4x + 3$ crosses the y-axis at A.</p> <p>1) What is the coordinates of point A?</p> <p>2) Write down the equation of a line parallel to $y = 4x + 3$.</p> <p style="text-align: right;">Bronze ★</p>	<p>A line passes through the point $(0, 5)$. The gradient of the line is -2. Write the equation of the line.</p> <p style="text-align: right;">Silver ★</p>	<p>1) Find the equation of line L.</p> <p>2) Find the equation of line M.</p> <p>3) Write down the coordinates of the point where Lines L and M intersect.</p> <p style="text-align: right;">Gold ★</p>
<p>A straight line has the equation $y = 2x - 4$.</p> <p>1) Write down the gradient of the line.</p> <p>2) Write down the coordinates of the point where the line crosses the y-axis.</p> <p style="text-align: right;">Bronze ★</p>	<p>A straight line has the equation of $3y + 12x = 9$. Work out the gradient of this line.</p> <p style="text-align: right;">Silver ★</p>	
<p>A line passes through the points $(-2, 5)$ and $(6, 9)$. What is the equation of the line?</p> <p style="text-align: right;">Silver ★</p>		



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Answers



The line $y = 4x + 3$ crosses the y -axis at A.

1) What is the coordinates of point A?

y -intercept is 3. so the coordinate is $(0, 3)$

2) Write down the equation of a line parallel to $y = 4x + 3$.

$$y = 4x + c$$

E.g. $y = 4x, y = 4x - 2$ or $y = 4x + 5$

Bronze ★

A straight line has the equation $y = 2x - 4$.

1) Write down the gradient of the line.

The gradient is 2.

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

y -intercept is -4 . so the coordinate is $(0, -4)$

Bronze ★

A line passes through the point $(0, 5)$. The gradient of the line is -2 .

Write the equation of the line.

$$y = -2x + 5$$

Silver ★

A straight line has the equation of

$$3y + 12x = 9$$

Work out the gradient of this line.

$$3y = 9 - 12x$$

$$y = 3 - 4x$$

The gradient is -4 .

Silver ★

A line passes through the points $(-2, 5)$ and $(6, 9)$. What is the equation of the line?

$$\text{Gradient (m)} = \frac{\text{change in } y}{\text{change in } x} = \frac{4}{8} = \frac{1}{2}$$

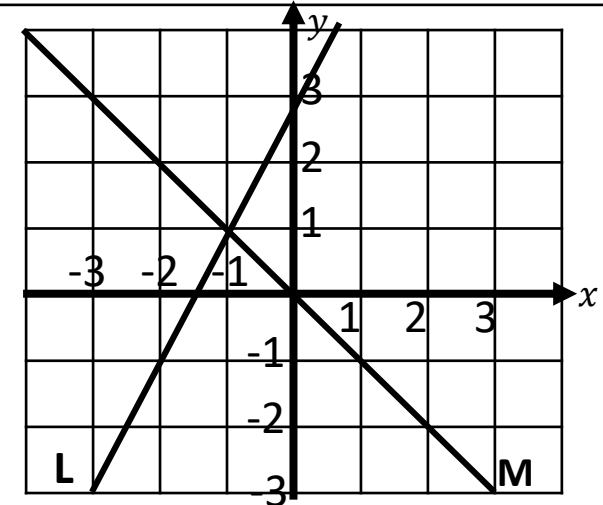
$y = \frac{1}{2}x + c$ (sub in $(6,9)$ to find value for c .)

$$9 = \frac{1}{2}(6) + c$$

$$c = 9 - 3 = 6$$

$$y = \frac{1}{2}x + 6$$

Silver ★



1) Find the equation of line L.

$$m = \frac{2}{1} = 2, c = 3$$

$$y = 2x + 3$$

2) Find the equation of line M.

$$m = \frac{-1}{1} = -1, c = 0$$

$$y = -x$$

3) Write down the coordinates of the point where Lines L and M intersect.

$(-1, 1)$

Gold ★