BECA / IB Math 01-Linear functions Name:
7 October 2021

PreQuiz: I can model with linear functions

Equations of a straight line: $f(x) = mx + c$, $ax + by + d = 0$, $(y - y_1) = m(x - x_1)$

Gradient: $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

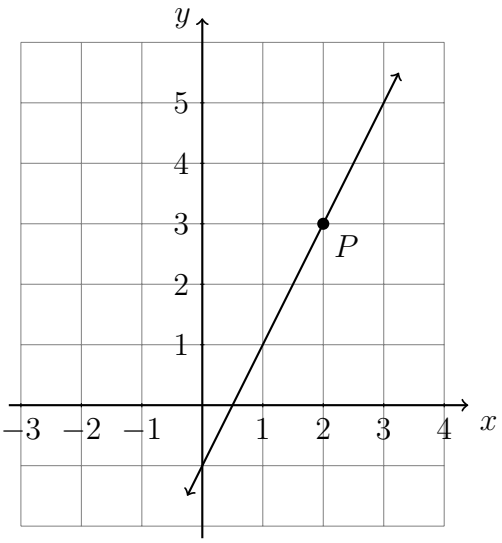
1. A linear function f is graphed below.

   (a) Write down it's slope.
   $m =$

   (b) Write down it's y-intercept.
   $b =$

   (c) Write down the equation of the line.

   (d) State the coordinates of the point P.



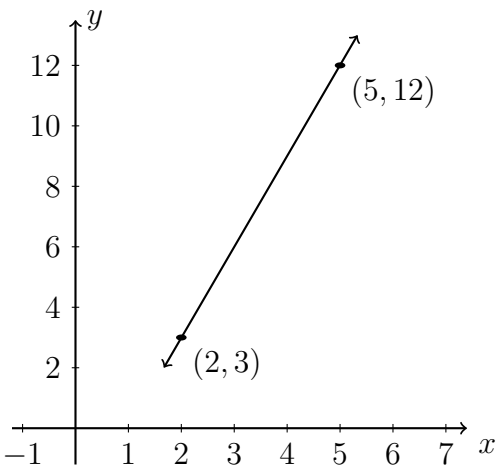
2. Write the linear equation $y - 2 = 3(x + 1)$ in the form $y = mx + c$.

3. A line has a gradient (slope) of $-\dfrac{3}{2}$ and passes through the point $(4, 1)$. Find the equation of the line in the form $y = mx + b$.

4. A line goes through the points $(2, 3)$ and $(5, 12)$.

   (a) Find the gradient of the line.

   (b) Find the equation of the line in the form $y = mx + b$.



5. Find the equation of the line through the points $(4, 3)$ and $(-2, 18)$.

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6. A function f is shown in the table. [5]

x	0	2	4	6	8
$f(x)$	0	1	2	3	4

(a) Is f a linear function? Why or why not?

(b) Is f a direct variation? Explain.

(c) Find the gradient of the function.

(d) Write down the equation of f in the form $y = mx + c$

(e) Complete the table of the inverse of f.

x					.
$f^{-1}(x)$					.

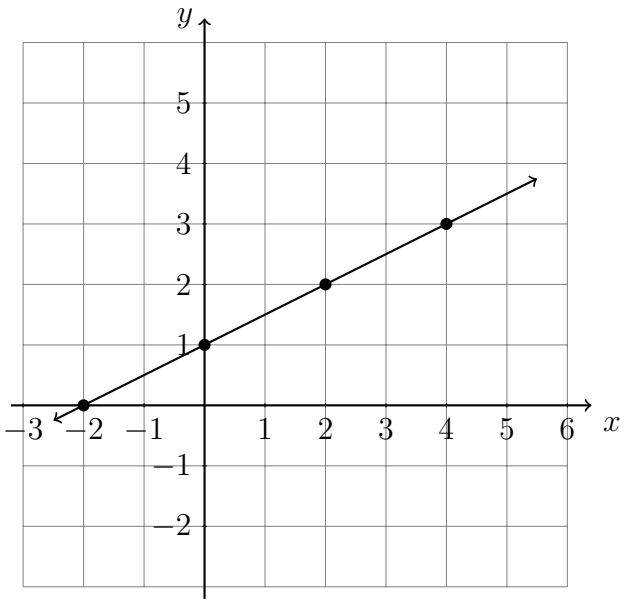
7. A function $f(x) = \frac{1}{2}x + 1$ is graphed below.

   (a) Complete the T-table of values for the function on the left.

   (b) Write down the values for the inverse function in the right T-table.

   (c) Draw the line for the inverse function on the graph.

$f(x)$	
-2	
0	
2	
	3



$f^{-1}(x)$	

8. Find the inverse function of $f(x) = \frac{3}{2}x - 4$ using algebraic methods.