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

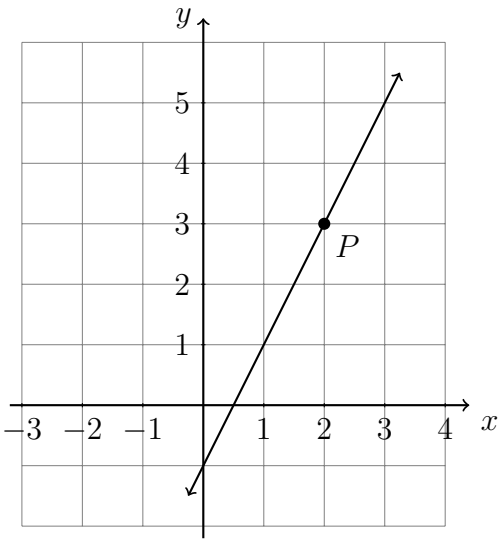
1. A linear function $f$ is graphed below.

   (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 $P$.



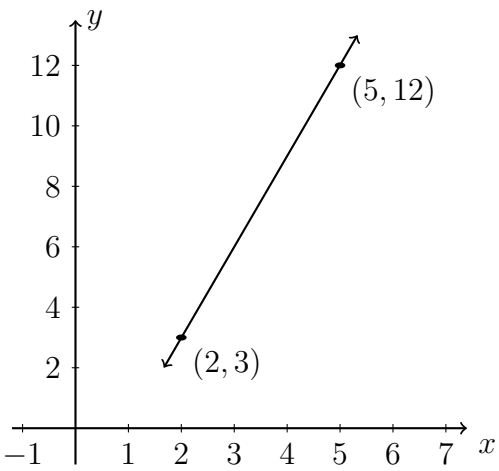

2. Write the linear equation $y - 2 = 3(x + 1)$ in the form $y = mx + c$.

3. A line has a gradient (slope) of 3 and goes through the point $(1, 4)$. 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 $(-2, 5)$ and $(3, 20)$.

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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 $f$.

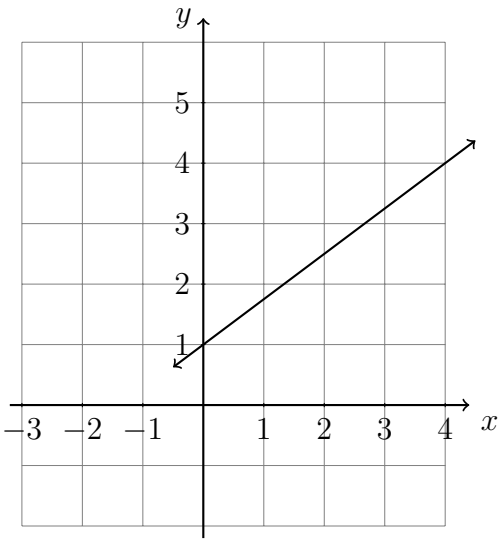
| $x$ | | | | | . |
|---|---|---|---|---|---|
| $f^{-1}(x)$ | | | | | . |

7. A function $f(x) = \frac{3}{4}x + 1$ is graphed below.

   (a) Create a table of values for the function

   (b) Create a table of values for the inverse function.

   (c) Draw the inverse function on the graph.




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