

6.3 Homework: Standard form of a linear equation

Equations of a straight line: $f(x) = mx + b$, $ax + by = c$

1. A linear equation f is graphed below.

(a) State the coordinates of the point P .

$(2, 3)$

(b) State the coordinates of the y -intercept.

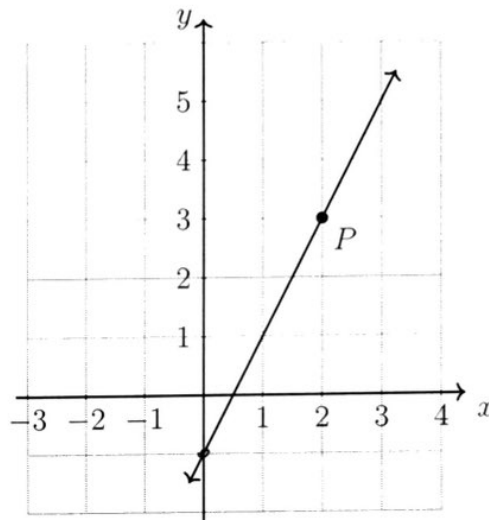
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(c) Write down the line's slope.

$m = 2$

(d) Write down the equation of the line.

$y = 2x - 1$



2. Write the linear equation $6x + 2y = 4$ in the form $y = mx + c$.

$$\begin{aligned} +6x & \quad +6x \\ 2y & = 6x + 4 \\ y & = 3x + 2 \end{aligned}$$

3. A line has a slope of $-\frac{3}{2}$ and passes through the point $(0, 2)$. Write down the equation of the line in the form $y = mx + b$.

$$y = -\frac{3}{2}x + 2$$

4. Is the point $(0, 3)$ the y -intercept of the line $5x + 3y = 9$? Explain.

$$5(0) + 3(3) = 9?$$

$$9 = 9 \checkmark$$

It is on the line and on the y -axis yes

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

$$m = \frac{18 - 3}{-2 - 4} = \frac{15}{-6} = -\frac{5}{2}$$

6. Complete each statement about linear equations.

(a) What is the slope of a horizontal line?

0

(b) What is the y -intercept of the line $y = -5.75x - 8.25$?

-8.25 ~~22~~

(c) Is the line $x = 12$ horizontal, vertical, or diagonal?

vertical

(d) What is the slope of the line $y = 7$?

0

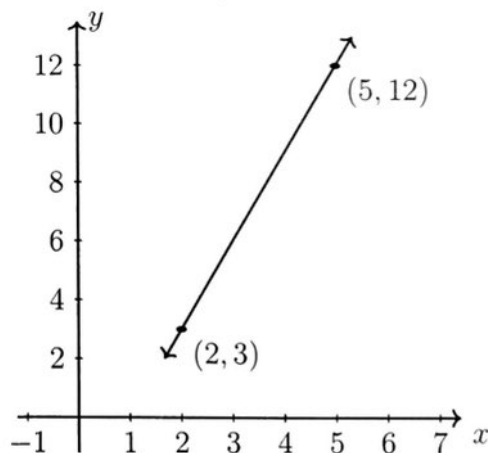
7. A line goes through the points $(2, 3)$ and $(5, 12)$.

(a) Find the slope of the line.

$$m = \frac{12 - 3}{5 - 2} = \frac{9}{3} = 3$$

(b) Given the y -intercept is $b = -3$. Write the equation of the line in the form $y = mx + b$.

$$y = 3x - 3$$



(c) Show that the point $(5, 12)$ satisfies the equation of the line you wrote.

$$12 = 3(5) - 3 \quad ?$$

$$12 = 15 - 3 \quad \checkmark$$