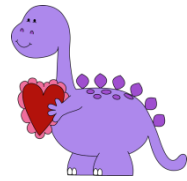


Unit 4 Day 4 homework



For #1-4, write the equation of the line in slope-intercept form.

1. $f(0) = 4$ and $f(-3) = -8$

$\begin{matrix} \uparrow & \uparrow & \uparrow & \uparrow \\ x & y & x & y \\ b \rightarrow (0, 4) & (-3, -8) \end{matrix}$

$$m = \frac{-8 - 4}{-3 - 0} = \frac{-12}{-3} = 4$$

$$y = 4x + 4$$

3. Goes through the points $(2, -4)$ and $(4, -8)$

$$m = \frac{-8 - (-4)}{4 - 2} = \frac{-4}{2} = -2$$

$$\begin{aligned} y &= mx + b \\ -4 &= 2(-2) + b \\ -4 &= -4 + b \\ 0 &= b \end{aligned}$$

$$\begin{aligned} y &= -2x + 0 \\ y &= -2x \end{aligned}$$

2. Passes through the origin and has a slope of $-\frac{3}{4}$

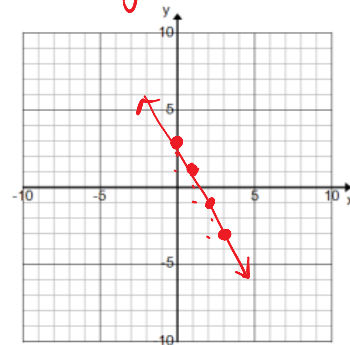
$b = 0$ $m = -\frac{3}{4}$

$$y = -\frac{3}{4}x + 0$$

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

4. Given a slope of -2 and y-intercept of 3

Equation: $y = -2x + 3$



5. A young author has set up a new savings account for her profits from her newspaper job. She placed her signing bonus of \$196 in her account, and will add the \$24.50 she will receive for each article she writes for the newspaper.

a) Write an equation to represent how much money she will earn.

$$y = 24.50x + 196$$

b) What is the rate of change? What does it represent in this situation?

the slope! \$24.50 → amount she receives for each article

c) How much money will she have in her savings account after she writes 8 articles?

$$y = 24.50(8) + 196$$

$$y = \$392.00$$

d) How many articles are needed to increase her savings account to \$441?

$$\begin{aligned} 441 &= 24.50x + 196 \\ -196 & \quad -196 \end{aligned}$$

$$\frac{245}{24.50} = \frac{24.50x}{24.50}$$

$x = 10 \rightarrow 10 \text{ articles}$

