6.3 - Applying Linear Functions

Vocabulary:

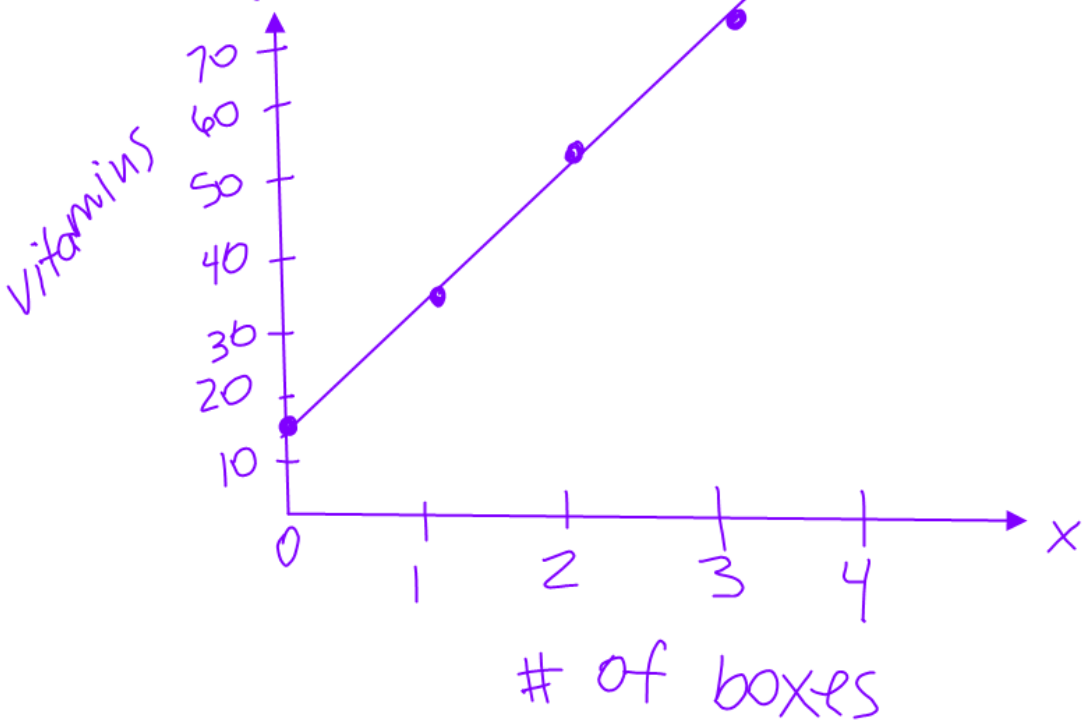
none

Slope: $\frac{\text{rise}}{\text{run}} = \frac{\text{y-axis}}{\text{x-axis}}$

1 EXAMPLE A health food store has 15 bottles of one vitamin in stock. The manufacturer ships these vitamins in boxes of 20. Write a linear function that relates the number of boxes to the total number of bottles of this vitamin at the store. Graph the function that models the situation.

$y = 15 + 20x$

x = # of boxes



x	y
1	35
2	55
3	75

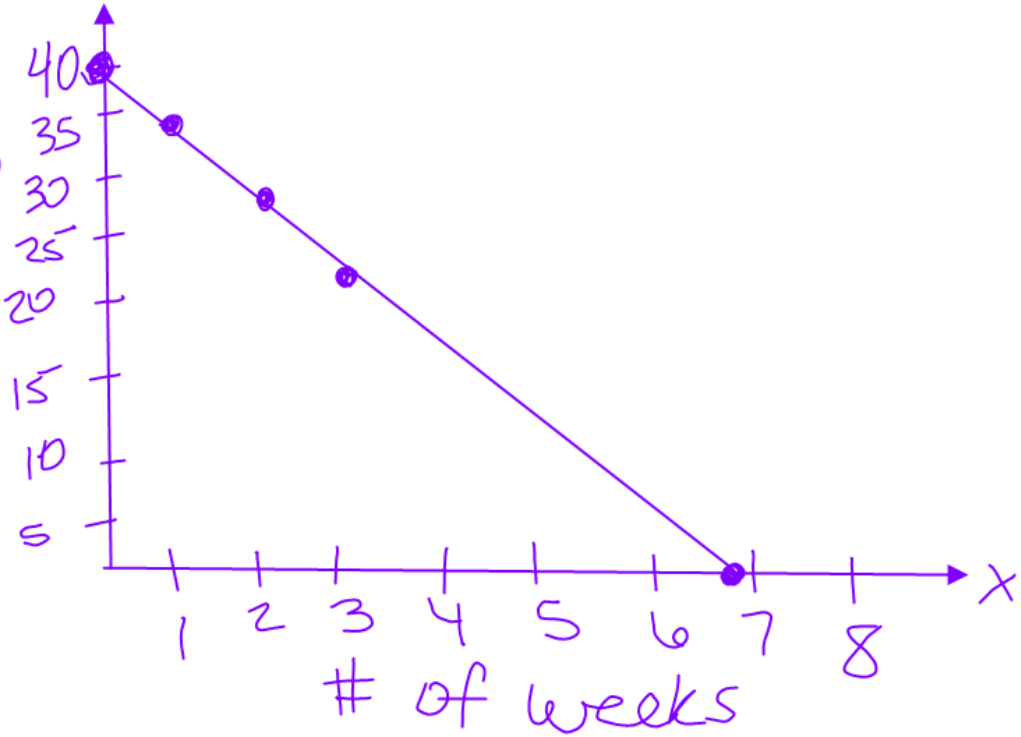
A car company has 40 cars in stock. They sell 6 cars every week. Assuming the company does not buy any new cars, how many weeks will it take to sell all of their cars?

Write a linear equation and graph it.

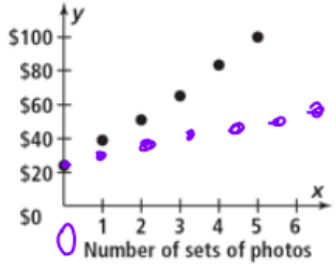
$y = 40 - 6x$

↑ # of weeks

# of cars



2 EXAMPLE Students in the ninth-grade class drew the following graph to represent how much money would be in the class fund after selling sets of photos of their year's activities.



$\frac{\$18}{1}$

a. What does the slope and *y*-intercept of the graph mean for the given situation?

y-int: $22 starting balance

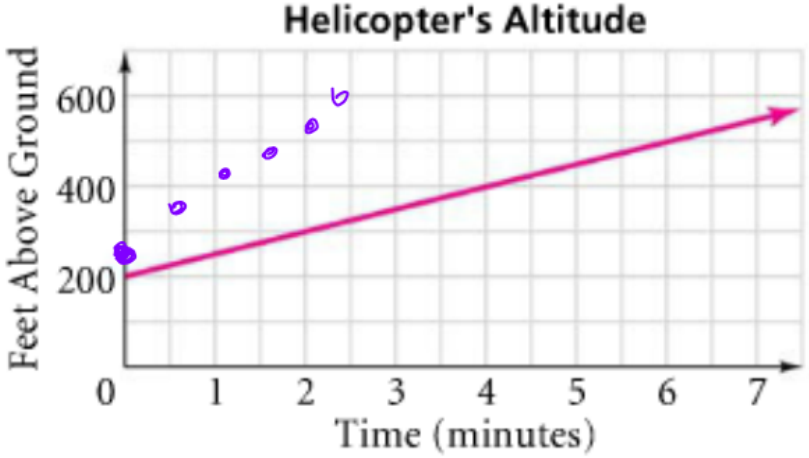
m = the photos you sell, the more $ you make

b. If the graph had the same slope but a *y*-intercept of 40, what could you conclude? starting is higher amount

c. If the graph had a slope of 12.5, what could you conclude?

for every set of photos you charge $12.50

4. A helicopter takes off from the roof of a building. The graph shows the altitude of the helicopter as it rises steadily for several minutes.



$\frac{200 \text{ ft.}}{4 \text{ mins.}} \div 4 = \frac{50 \text{ ft.}}{1 \text{ min}}$

a. What does the slope and *y*-intercept reveal about the original situation?

b. For a similar situation, the slope is 85 and *y*-intercept is 250. What can you conclude?

a) y-int: 200 ft. is the height of the building
slope: the helicopter rises 50 ft. every minute

b) y-int: the roof is 50 ft. higher
slope: 85 ft per minute which is a steeper slope

Homework: worksheet