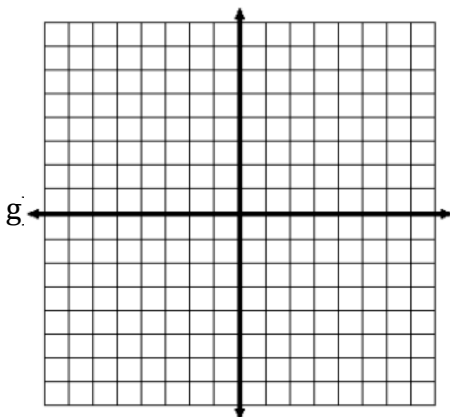


LINEAR EQUATION WORD PROBLEMS

1. Bubba’s doctor put Bubba on a strict diet that was designed to reduce his weight at a steady rate of 5 pounds every 2 weeks. Bubba weighed 425 pounds when he started the diet. If Bubba’s weight on the diet is modeled by $y = -\frac{5}{2}x + 425$, how much will Bubba weigh after 20 weeks? When will he weigh 300 pounds?

2. An ice cream shop opened up in Portland in 1990. Since it’s opening, the company has had financial growth that can be modeled by a linear equation. On average, the company has grown by \$10,000 every 5 years. When the ice cream shop first opened, it was valued at \$15,000.
 - a) What is the dependent and independent variables?
 - b) What is the initial value?
 - c) What is the rate of change (i.e. the slope)?
 - d) Write a linear equation to model the growth of the ice cream shop.
 - e) Graph the equation you found in part d.

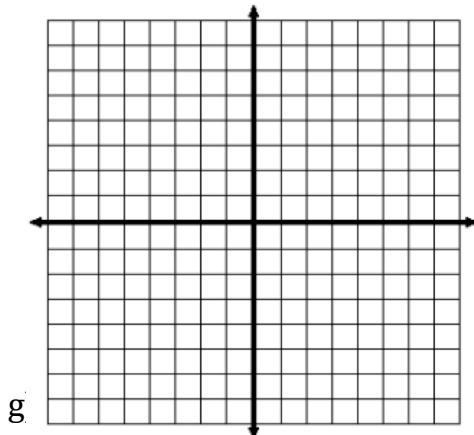


- f) What will the ice cream shop be worth in 2020?

- h) When will the ice cream shop be worth \$100,000?

3. A small airplane costs \$700,000 new. After 10 years, the airplane is worth \$250,000.

- a) What is the dependent variable? Independent variable?
- b) What is the rate of change for the value of the airplane?
- c) Write an equation to model the depreciation of the airplane.
- d) Graph the equation you found from part c.



- e) When was the airplane worth \$500,000?
- f) How much is the airplane worth after 4 years?

4. The population of elk in a national forest was measured to be 12,000 in 2013, and was measured again to be 15,000 in 2015. If the population continues to grow linearly at this rate, what will the elk population be in 2017?

5. Vinny is trying to save money. To encourage him, his dad opened a savings account for him and started him off with a gift of \$1,000. Vinny has committed to depositing \$50 into his account every week.

- a) Write an equation that models his saving account balance.
- b) What will his balance be after 21 weeks?
- c) In how long will Vinny have \$6500?