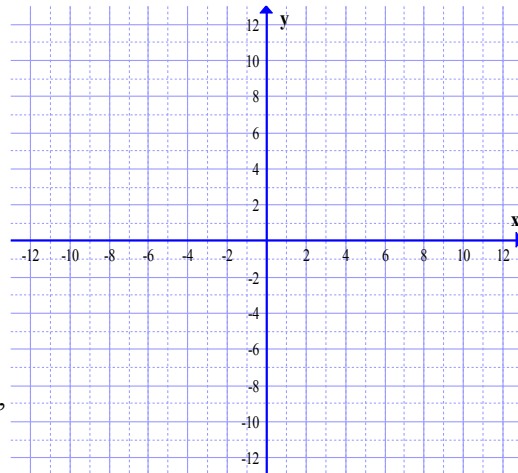
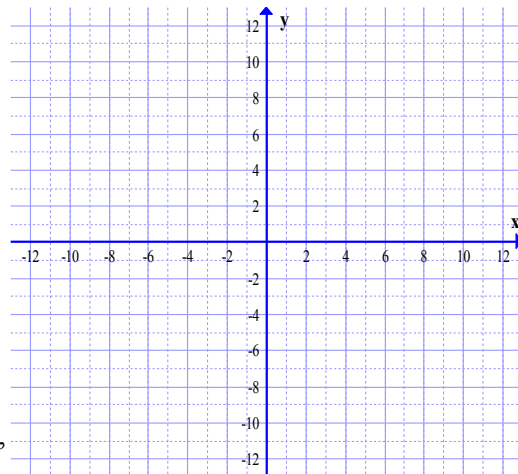


4.1 Practice Problems

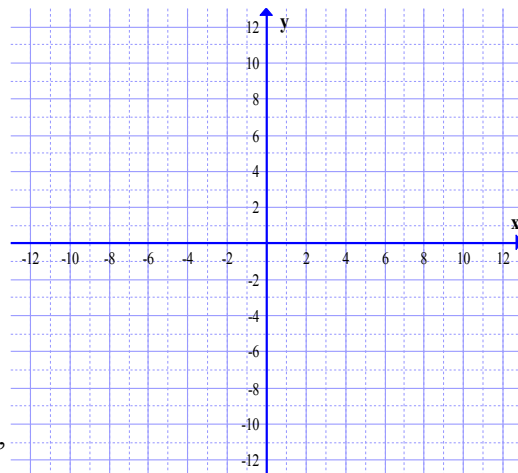
1. For the linear function $f(x) = 2x - 5$,
- Determine the slope and y -intercept.
 - Use the slope and y -intercept to graph the linear function.
 - Determine the average rate of change.
 - Determine whether the linear function is increasing, decreasing, or constant.



2. For the linear function $g(x) = -\frac{3}{5}x + 1$,
- Determine the slope and y -intercept.
 - Use the slope and y -intercept to graph the linear function.
 - Determine the average rate of change.
 - Determine whether the linear function is increasing, decreasing, or constant.



3. For the linear function $h(x) = 3$,
- Determine the slope and y -intercept.
 - Use the slope and y -intercept to graph the linear function.
 - Determine the average rate of change.
 - Determine whether the linear function is increasing, decreasing, or constant.



4. Suppose that the quantity supplied S and quantity demanded D of hotdogs at a baseball game are given by the following functions where p is the price.

$$S(p) = -9 + 3p$$

$$D(p) = 45 - 6p$$

a. Find the equilibrium price for the hotdogs at the baseball game.

b. Find the equilibrium quantity.

c. Determine the prices for which the quantity demanded is greater than the quantity supplied.

5. The point at which a company's profits equal zero is called the company's **break-even point**. Let R represent a company's revenue, let C represent the company's costs, and let x represent the number of units produced and sold each day.

$$R(x) = 10x$$

$$C(x) = 5x + 2500$$

a. Find the firm's break-even point. That is, find x where $R=C$.

b. Find the values of x such that $R(x) > C(x)$. This represents the number of units that the company must sell to earn a profit.