Section 2.1: Review of Lines

1. Determine the slope between each of the given pair of points.

(a) $(3, -4)$ and $(-9, 11)$

(b) $(8, 10)$ and $(8, -13)$

(c) $\left(\frac{3}{2}, \frac{2}{5}\right)$ and $\left(-\frac{7}{11}, \frac{2}{5}\right)$

2. Write the equation of the line given the slope which passes throught the given point in the stated form.

(a) $m = \dfrac{3}{7}$ and $(-9, 11)$, in point-slope form

(b) $m = \dfrac{7}{8}$ and $\left(\dfrac{8}{3}, 0\right)$, in standard form

(c) m is undefined and $\left(\dfrac{15}{19}, \dfrac{3}{40}\right)$, in standard form

3. Write the equation of the line which passes through the given pair of points.

(a) intersects the y-axis at $y = 8$ and the x-axis at $x = -6$

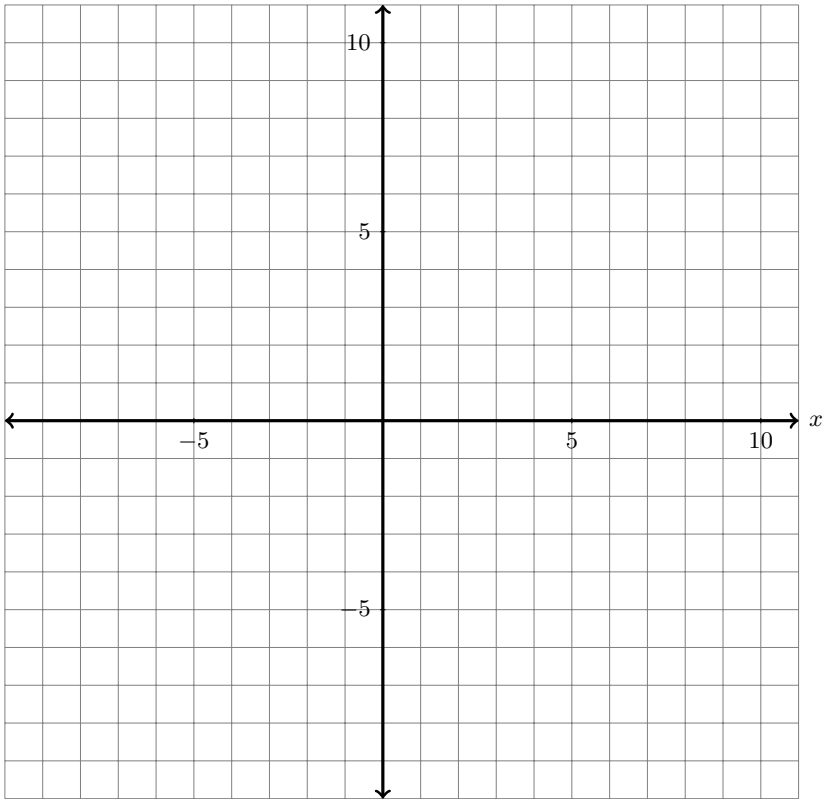
(b) $\left(\dfrac{3}{2}, \dfrac{2}{5}\right)$ and $\left(-\dfrac{7}{11}, \dfrac{2}{5}\right)$

4. Determine the x- and y-intercept without graphing. Write the coordinates of each intercept. Then use the points to graph each line.

(a) $10x - 12y = 60$

(b) $x = -7$

(c) $y = 4$



5. Given the line $x = \frac{5}{6}y - \frac{11}{4}$,

(a) If y increases by 9 units, what is the corresponding change in x?

(b) If x decreases by 7 units, what is the corresponding change in y?

6. If when x increases by 3.3 units, y decreases by 4.5 units, what is the slope of the line containing any point (x, y)?

Section 2.2: Modeling with Linear Functions

1. A piece of machinery is purchased new for \$350,000 and has a value of \$145,000 after 8 years.

(a) Write the linear depreciation model for the value of the machinery, V, after t years.

(b) What is the value of the machinery after 48 months?

(c) If the machinery reaches scrap value in 10 years, what is the scrap value of the machinery?

2. Munckin runs a rainbow lemonade stand that sells glasses of multicolored lemonade. Munckins only fixed costs are the weekly rent for the stand, which is \$264. The stand makes a profit of \$136, when 50 glasses of lemonde are sold in a week. If only 20 glasses are sold, Munckin knows the total costs for that week are \$344.

(a) Write the cost function for producing x glasses of lemonade at Munckin's stand.

(b) Write the profit function for producing and selling x glasses of lemonade at Munckin's stand.

(c) Write the revenue function for the sale of x glasses of lemonade at Munckin's stand.

3. Given x represents the number of basic tennis rackets supplied or demanded each year, in thousands, and p represents the price per basic racket, in dollars,

Equation A is $26700x + 329p - 315182 = 0$ and Equation B is $1100x - 47p + 12690 = 0$,

answer the following.

(a) Which equation is the supply equation? Why?

(b) How many basic tennis rackets will consumers purchase if the rackets are free?

(c) Producers will only provide the rackets if the price is above what value?