Name: _____ Date: _____

1. Point (–3, 13) , $m = -5$.

2. Point (–5, 22) , $m = -5$.

3. Point (9, 6) , $m = \frac{2}{9}$.

4. Point (–4, –7), slope is undefined.

5. Find the equation of the line that contains the points $P_1(-11, -6)$ and $P_2(5, -6)$.

6. Find the equation of the line that contains the points $P_1(-7, -11)$ and $P_2(-7, 11)$.

7. $P_1(4, -5),\ P_2(8, -13)$

8. $P_1(3, -17),\ P_2(7, -33)$

9. $P_1(0, 0),\ P_2(-5, 3)$

10. $P_1(0, 6),\ P_2(-5, 2)$

11. A Boeing 747 jet takes off from Boston's Logan Airport, which is at sea level, and climbs to a cruising altitude of 28,000 ft at a constant rate of 1200 ft/min.
    a. Write a linear equation for the height of the plane in terms of the time after takeoff.
    b. Use your equation to find the height of the plane 15 min after takeoff.

12. A building contractor estimates that the cost to build a home is $33,000 plus $80 for each square foot of floor space in the house.

    a. Determine a linear function that will give the cost of building a house that contains a given number of square feet of floor space.
    b. Use this model to determine the cost to build a house that contains 1900 square feet of floor space.

13. A cellular phone company offers several different service plans. One option, for people who plan on using the phone only in emergencies, costs the user $5.00 per month plus $0.65 per minute for each minute the phone is used.

    a. Write a linear function for the monthly cost of the phone in terms of the number of minutes the phone is used.
    b. Use your equation to find the cost of using the cellular phone for 20 minutes in 1 month.

14. The gas tank of a certain car contains 15 gal of gas when the driver of the car begins a trip. Each mile driven by the driver decreases the amount of gas in the tank by 0.045 gal.

    a. Write a linear function for the number of gallons of gas in the tank in terms of the number of miles driven.
    b. Use your equation to find the number of gallons in the tank after driving 101 mi. Round your answer to the nearest tenth of a gallon.

15. A manufacturer of graphing calculators has determined that 9000 calculators per week will be sold at a price of $100 each. At a price of $90, it is estimated that 15,000 calculators would be sold.

    a. Determine a linear function that will predict the number of calculators that would be sold at a given price, x.
    b. Use this model to predict the number of calculators that would be sold each week at a price of $75.

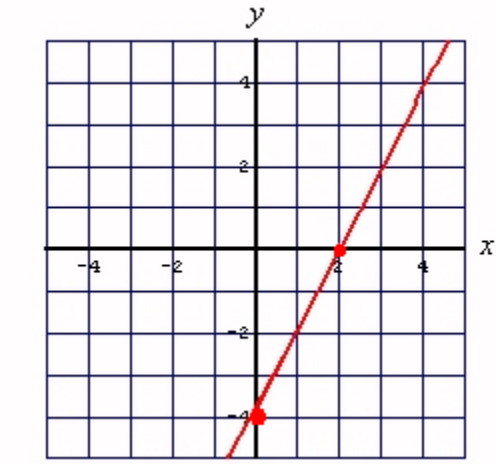
16. Graph by using the slope and y-intercept: $y = 2x - 4$

17. Write a linear equation for the following facts:
    y-intercept –7, slope –2

18. Graph by using the slope and *y*-intercept: $y = 3x - 4$

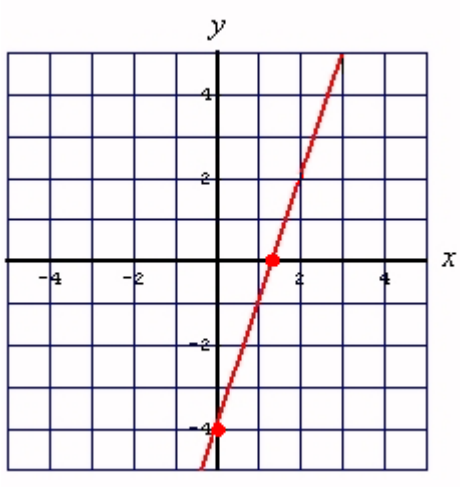
19. Write a linear equation for the following facts:
y-intercept 3, *x*-intercept –8

Answer Key

1. $y = -5x - 2$
2. $y = -5x - 3$
3. $y = \frac{2}{9}x + 4$
4. $x = -4$
5. $y = -6$
6. $x = -7$
7. $y = -2x + 3$
8. $y = -4x - 5$
9. $y = -\frac{3}{5}x$
10. $y = \frac{4}{5}x + 6$
11. (a) $y = 1200x,\ 0 \le x \le 23\frac{1}{3}$; (b) 18,000 ft
12. (a) $y = 80x + 33,000$; (b) \$185,000
13. (a) $y = 0.65x + 5.00$; (b) \$18.00
14. (a) $y = -0.045x + 15,\ 0 \le x \le 333$; (b) 10.5 gal
15. (a) $y = -600x + 69000$; (b) 24,000 calculators
16. 

17. $y = -2x - 7$

18.



19. $y = \frac{3}{8}x + 3$