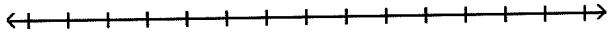
Practice Worksheet for chapter 1.5,1.6,2.1,2.2,2.3,2.5

Name_____

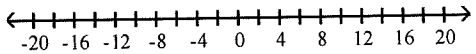
SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Solve the inequality. Express your answer using interval notation.

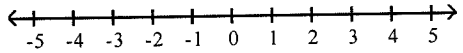
1) $-8x - 12 \le -2(3x + 5)$ 1) _____



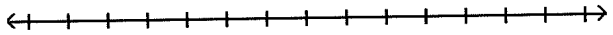
2) $\frac{x}{3} \ge 2 + \frac{x}{9}$ 2) _____



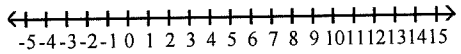
3) $x(16x + 3) \le (4x + 7)^2$ 3) _____



4) $-31 \le -5x + 4 \le -11$ 4) _____



5) $6 \le \frac{5}{2}x + 1 < 16$ 5) _____



Solve the equation.

6) $|x| + 6 = 4$ 6) _____

7) $|8x + 2| + 5 = 9$ 7) _____

8) $|2x^2 - x - 1| = 3$ 8) _____

9) $|x^2 - 6x| = 0$ 9) _____

Solve the inequality. Express your answer using interval notation.

10) $|x + 1| - 6 \le -3$ 10) _____

11) $|5x + 2| > 3$ 11) _____

Find the distance $d(P_1, P_2)$ between the points P_1 and P_2.

12) $P_1 = (1, -3)$; $P_2 = (-4, -15)$ 12) _____

13) $P_1 = (-6, -3)$; $P_2 = (1, -2)$ 13) _____

Solve the problem.

14) Find all values of k so that the given points are $\sqrt{29}$ units apart. 14) _____
(-5, 5), (k, 0)

15) If (5, -1) is the endpoint of a line segment, and (9, 4) is its midpoint, find the other endpoint. 15) _____

Find the midpoint of the line segment joining the points P_1 and P_2.

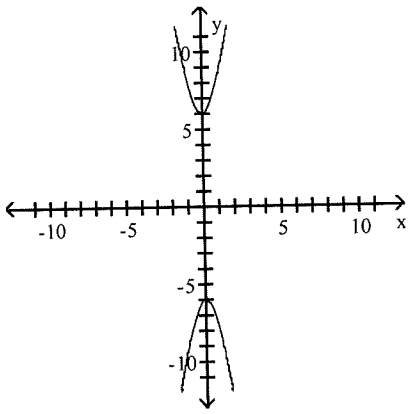
16) $P_1 = (5a, 9)$; $P_2 = (6a, 4)$ 16) _____

List the intercepts for the graph of the equation.

17) $x^2 + y - 49 = 0$ 17) _____

List the intercepts of the graph.Tell whether the graph is symmetric with respect to the x-axis, y-axis, origin, or none of these.

18) 18) _____



List the intercepts and type(s) of symmetry, if any.

19) $y = \dfrac{-x^5}{x^2 - 4}$ 19) _____

20) $9x^2 + y^2 = 9$ 20) _____

Determine whether the graph of the equation is symmetric with respect to the x-axis, the y-axis, and/or the origin.

21) $y = 2x^4 - 7x + 5$ 21) _____

Find an equation for the line with the given properties.

22) Slope undefined; containing the point (-7, -9) 22) _____

Find the slope-intercept form of the equation of the line with the given properties.

23) Slope = 0; containing the point (8, -3) 23) _____

Find an equation for the line, in the indicated form, with the given properties.

24) Containing the points (2, 0) and (0, -11); general form 24) _____

25) Containing the points (-4, -8) and (-3, 7); slope-intercept form 25) _____

Find the slope and y-intercept of the line.

26) $9x - 5y = 8$ 26) _____

Find an equation for the line with the given properties.

27) Parallel to the line $y = -2x$; containing the point (7, 8) 27) _____

28) Parallel to the line $x = -5$; containing the point (8, 3) 28) _____

29) Parallel to the line $3x + 4y = 5$; x-intercept = 5 29) _____

30) Perpendicular to the line $y = -4x + 4$; containing the point (1, 4) 30) _____

31) Perpendicular to the line $y = 4$; containing the point (9, 1) 31) _____

Write a general formula to describe the variation.

32) A varies directly with t^2; $A = 8$ when $t = 2$ 32) _____

33) z varies directly with the sum of the squares of x and y; $z = 10$ when $x = 6$ and $y = 8$ 33) _____

Solve the problem.

34) The amount of water used to take a shower is directly proportional to the amount of time that the shower is in use. A shower lasting 23 minutes requires 4.6 gallons of water. Find the amount of water used in a shower lasting 4 minutes. 34) _____

35) The distance that an object falls when it is dropped is directly proportional to the square of the amount of time since it was dropped. An object falls 156.8 meters in 4 seconds. Find the distance the object falls in 5 seconds. 35) _____

Write an equation that expresses the relationship. Use k as the constant of variation.

36) w varies inversely as the square of y. 36) _____

Solve the problem.

37) When the temperature stays the same, the volume of a gas is inversely proportional to the pressure of the gas. If a balloon is filled with 301 cubic inches of a gas at a pressure of 14 pounds per square inch, find the new pressure of the gas if the volume is decreased to 43 cubic inches. 37) _____

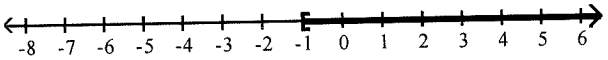
38) If the voltage, V, in an electric circuit is held constant, the current, I, is inversely proportional to the resistance, R. If the current is 280 milliamperes (mA) when the resistance is 5 ohms, find the current when the resistance is 20 ohms. 38) _____

Write a general formula to describe the variation.

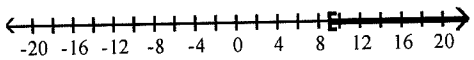
39) The square of G varies directly with the cube of x and inversely with the square of y; $G = 4$ when $x = 4$ and $y = 6$ 39) _____

40) z varies jointly as the cube root of x and the square of y; $z = 50$ when $x = 125$ and $y = 2$. 40) _____

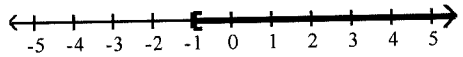
1) $[-1, \infty)$



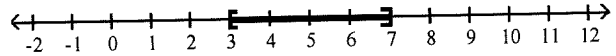
2) $[9, \infty)$



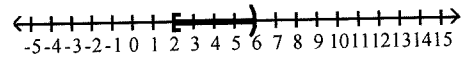
3) $[-\frac{49}{53}, \infty)$



4) $[3, 7]$



5) $[2, 6)$



6) no solution

7) $\{\frac{1}{4}, -\frac{3}{4}\}$

8) $\{\frac{1-\sqrt{33}}{4}, \frac{1+\sqrt{33}}{4}\}$

9) $\{0, 6\}$

10) $[-4, 2]$

11) $(-\infty, -1)$ or $(\frac{1}{5}, \infty)$

12) 13

13) $5\sqrt{2}$

14) $-3, -7$

15) $(13, 9)$

16) $\left(\frac{11a}{2}, \frac{13}{2}\right)$

17) $(-7, 0), (0, 49), (7, 0)$

18) intercepts: $(0, 6)$ and $(0, -6)$
symmetric with respect to x-axis, y-axis, and origin

19) intercept: $(0, 0)$
symmetric with respect to origin

20) intercepts: $(1, 0), (-1, 0), (0, 3), (0, -3)$
symmetric with respect to x-axis, y-axis, and origin

21) none

22) $x = -7$

23) $y = -3$

24) $11x - 2y = 22$

25) $y = 15x + 52$

26) slope = $\frac{9}{5}$; y-intercept = $-\frac{8}{5}$

27) $y = -2x + 22$

28) $x = 8$

29) $3x + 4y = 15$

30) $y = \frac{1}{4}x + \frac{15}{4}$

31) $x = 9$

32) $A = 2t^2$

33) $z = \frac{1}{10}(x^2 + y^2)$

34) 0.8 gal

35) 245 m

36) $w = \frac{k}{y^2}$

37) 98 psi

38) 70 mA

39) $G^2 = 9\frac{x^3}{y^2}$

40) $z = \frac{5}{2}\sqrt[3]{xy^2}$