Use an inequality to describe the interval of real numbers.

1) $(-6, 7]$

Solve the equation.

6) $\frac{1}{4}(8x - 16) = \frac{1}{2}(8x - 4)$

Simplify the expression. Assume that the variables in the denominator are nonzero.

2) $\dfrac{(2x^2)^3 z^4}{2z^6}$

3) $\dfrac{\left(x^{-2}y^2\right)^{-3}}{\left(y^2 x^{-4}\right)^{-4}}$

Solve the inequality.

7) $\dfrac{2y - 2}{3} + \dfrac{3y + 1}{5} \le y + 1$

Find the distance between the points.

4) $(-1, -5) \, (5, 5)$

Find a general form equation for the line through the pair of points.

8) $(-1, 4)$ and $(5, 2)$

Write the statement using absolute value notation.

5) The distance between x and 1 is 7.

Determine the equation of the line described. Put answer in the slope–intercept form, if possible.

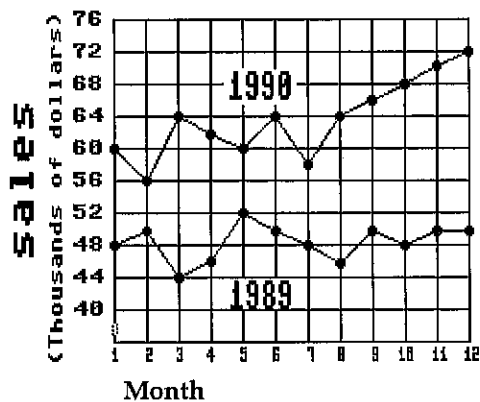9) Through (–7, 4), perpendicular to $2x + 3y = -2$

Solve the problem.

10) Let $C(x) = 900 + 30x$ be the cost to manufacture x items. Find the average cost per item to produce 90 items. Round to the nearest dollar.

Use this graph to answer each question.

Big "D" Sales
1989–1990

Month

11) What was the percent of increase in sales between month 2 and month 12 of 1990? Round your answer to the nearest tenth.

1) $-6 < x \le 7$

2) $\dfrac{4x^6}{z^2}$

3) $\dfrac{y^2}{x^{10}}$

4) $2\sqrt{34}$

5) $|x - 1| = 7$

6) $x = -1$

7) $y \le \dfrac{11}{2}$

8) $2x + 6y - 22 = 0$

9) $y = \dfrac{3}{2}x + \dfrac{29}{2}$

10) $40

11) 28.6%

Simplify the expression. Assume that the variables in the denominator are nonzero.

1) $\dfrac{\left(x^{-3}y^4\right)^{-4}}{\left(y^4x^{-5}\right)^{-5}}$

Write the statement using absolute value notation.

4) The distance between y and –2 is less than or equal to 6.
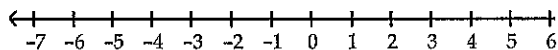
Find the distance between the points.

2) $(2, 2)\ (-5, -1)$

Solve the equation.

5) $\dfrac{6x-6}{4}+\dfrac{4x+8}{5}=2$

Describe and graph the interval of real numbers.

3) $(-5, -1]$

Solve the inequality.

6) $\dfrac{2y-2}{3} + \dfrac{3y+1}{5} \le y+1$

Determine the equation of the line described. Put answer in the slope–intercept form, if possible.

8) Through (–3, –9), perpendicular to $5x - 4y = 21$

Find a general form equation for the line through the pair of points.

7) (1, 3) and (7, –3)

Solve the problem.

9) Assume that the sales of a certain appliance dealer are approximated by a linear function. Suppose that sales were \$4000 in 1982 and \$79,500 in 1987. Let $x = 0$ represent 1982. Find the equation giving yearly sales $S(x)$.

Solve the equation by factoring.

10) $8x^2 - 55x - 7 = 0$

Solve by completing the square.

11) $x^2 = -5x + 5$

Solve the inequality algebraically. Write the solution in interval notation.

12) $|1 - 4x| - 4 < 5$

Solve the problem.

13) The height of a box is 10 inches. The length is three inches more than the width. Find the width if the volume is 280 cu inches.

Solve the equation graphically by finding x–intercepts.

14) $x^3 + 6x^2 + 12x + 5 = 0$

15) $|3x - 8| = 5$

Solve the quadratic inequality by graphing an appropriate quadratic function.
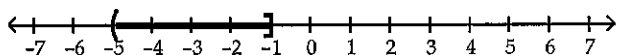
16) $x^2 + 3x \geq -2$

4

1) $\dfrac{y^4}{x^{13}}$

2) $\sqrt{58}$

3)

All real numbers between –5 and –1, including –1.

4) $|\,y + 2\,| \le 6$

5) $x = \dfrac{19}{23}$

6) $y \le \dfrac{11}{2}$

7) $6x + 6y - 24 = 0$

8) $y = -\dfrac{4}{5}x - \dfrac{57}{5}$

9) $S(x) = 15{,}100x + 4000$

10) $x = -\dfrac{1}{8}$ or $x = 7$

11) $\dfrac{-5 \pm 3\sqrt{5}}{2}$

12) $\left(-2, \dfrac{5}{2}\right]$

13) 4 inches

14) $x = -0.56$

15) $x = 1$ or $x = \dfrac{13}{3}$

16) $(-\infty, -2] \cup [-1, \infty)$