

On my honor, I have neither given nor received unauthorized aid on this assignment. _____

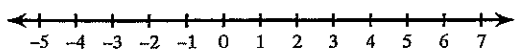
Solve each equation.

1) $|4x| = 28$

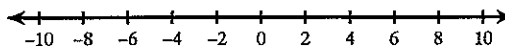
2) $|-9 + x| = 1$

Solve each inequality and graph its solution.

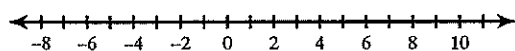
3) $|2 + v| < 2$



4) $|-10n| \leq 80$



5) $|7k - 10| > 38$



Simplify each expression.

6) $3x - 6(-1 - 6x)$

7) $\frac{25}{6} - 8\left(\frac{33}{8}v + 1\right)$

Find the distance between each pair of points.

8) $(5, 6), (0, 0)$

Simplify. Leave no radicals in denominator. No decimal answers.

9) $\frac{\sqrt{12}}{2\sqrt{3}}$

10) $\frac{5\sqrt{15}}{4\sqrt{16}}$

11) $\frac{5\sqrt{12}}{\sqrt{3}}$

Simplify. Leave no radicals in denominators. No decimal answers.

12) $-\frac{3\sqrt{5}}{4\sqrt{3} - 4\sqrt{5}}$

Simplify each expression.

$$13) \frac{6n^2 + 21n}{9n^2 - 18n} \cdot \frac{30n^3 - 60n^2}{20n + 70}$$

$$14) \frac{70r^2 + 10r}{7r + 1} \div \frac{8r + 56}{8r + 40}$$

$$15) \frac{3n^2 - 35n + 72}{70n^2 + 100n} \div \frac{3n - 8}{56n + 80}$$

Simplify. Write each answer in scientific notation.

$$16) (5.4 \times 10^{-3})(6.5 \times 10^{-6})$$

$$17) \frac{5 \times 10^{-4}}{7.3 \times 10^{-4}}$$

Solve each equation.

$$18) -\frac{883}{72} = \frac{1}{2}\left(x + \frac{1}{4}\right) - \frac{17}{6}\left(-\frac{3}{2}x - \frac{7}{3}\right)$$

$$19) -\frac{87}{70} = -\frac{1}{2}\left(k + \frac{23}{5}\right) + \frac{4}{7}\left(-\frac{21}{8}k + \frac{18}{5}\right)$$

Solve each equation by factoring.

$$20) 60 - 32b = -4b^2$$

$$21) -12v = -v^2 - 35$$

$$22) 18v^2 + 21 = 8v^2 + 29v$$

$$23) 6x^2 + 53x + 28 = -x^2$$

Solve each equation with the quadratic formula.

$$24) 5n^2 - 11n = 114$$

$$25) 12k^2 = -10$$

Solve each equation. Remember to check for extraneous solutions.

$$26) \frac{8}{a^2 + a} = \frac{1}{a^2 + a} - \frac{1}{a}$$

$$27) \frac{1}{6m^2 - 12m} = \frac{1}{4m} - \frac{1}{12m^2 - 24m}$$

Simplify. Your answer should contain only positive exponents.

$$28) 2v^4 \cdot (-u^5v^{-3})^{-4}$$

$$29) -2y^4 \cdot (x^0y^{-2})^3$$

$$30) \left(\frac{x^4y^4 \cdot y^3}{(x^2y^3)^{-1}}\right)^2$$

$$31) \frac{2a^2b^4 \cdot -2ba^{-4}}{(-a^4b^{-4})^2}$$

Factor each completely.

32) $x^3 - 7x^2 + 4x - 28$

33) $7m^3 + 14m^2 + 6m + 12$

Factor the common factor out of each expression.

34) $6x^6y - 3x^5y + 27x^3y^2$

35) $60x^4y - 54x^2y - 54x^2$

Factor each completely.

36) $3x^2 + 14x - 80$

37) $2v^2 + v$

38) $14k^2 - 114k + 112$

39) $25x^2 - 20x$

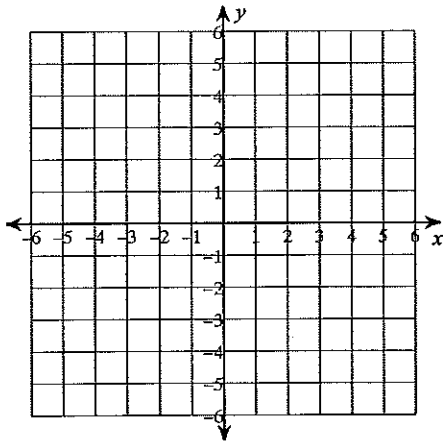
40) $5n^2 - 245$

41) $36k^2 - 60k + 25$

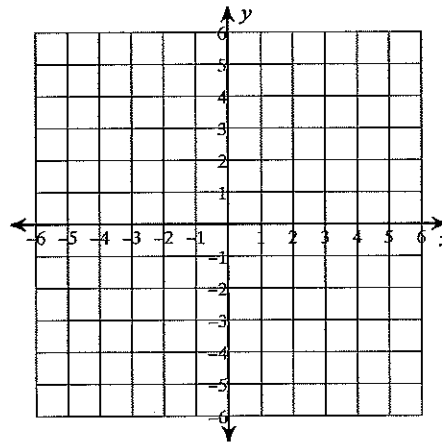
42) $25v^2 - 70v + 49$

Sketch the graph of each line.

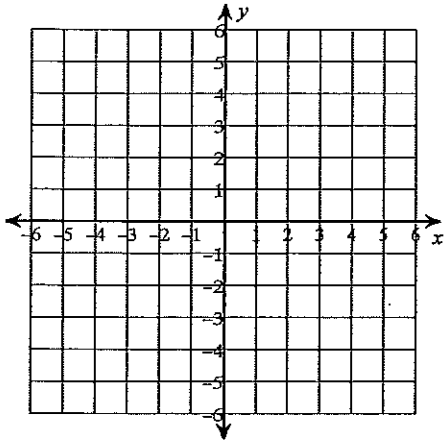
43) $2x + y = 4$



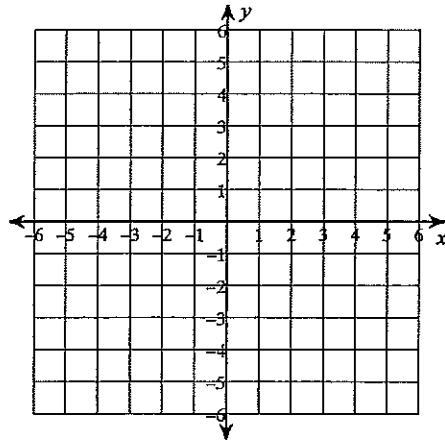
44) $x - y = -1$



45) $x + 4y = -8$

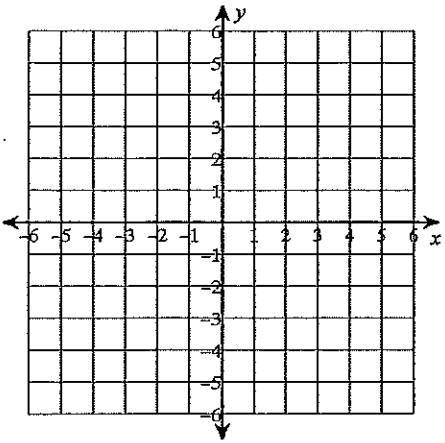


46) $x - y = 0$

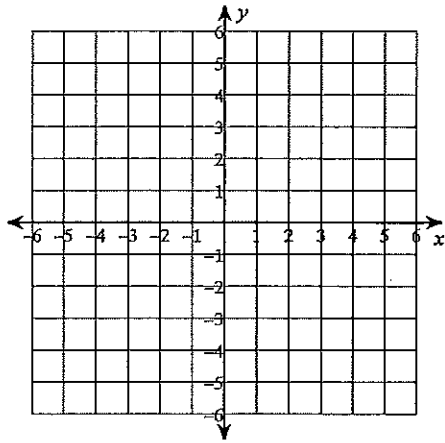


Sketch the graph of each linear inequality.

47) $x \leq -1$

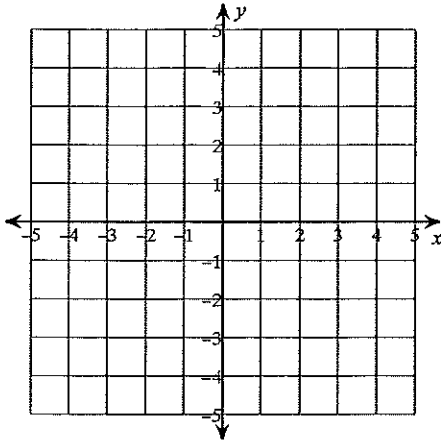


48) $y > -3x + 4$

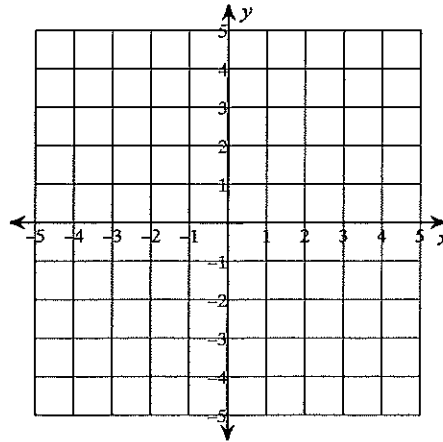


Solve each system by graphing.

$$49) \frac{9}{2} = -3x + \frac{3}{2}y$$
$$12 + x + 3y = 0$$

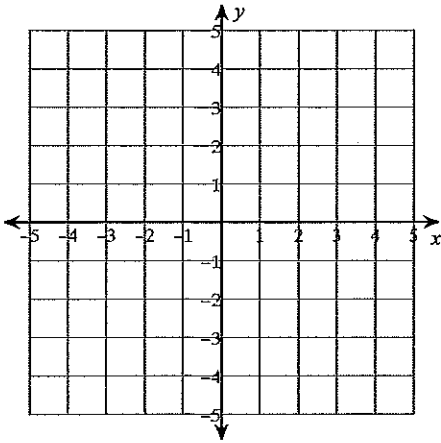


$$50) 0 = -y - 4 - 5x$$
$$2 = y - x$$

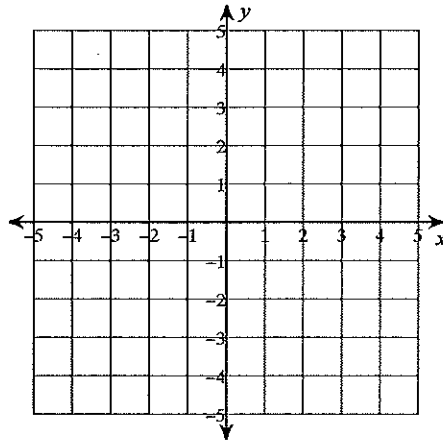


Sketch the solution to each system of inequalities.

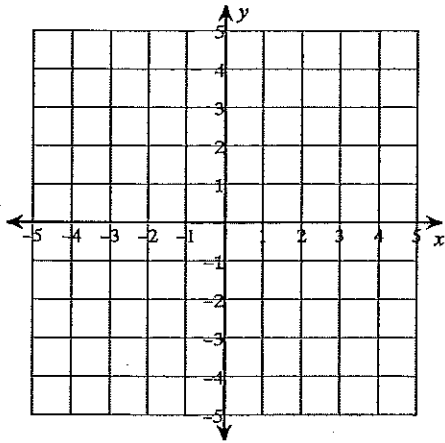
$$51) 5x - 2y > 6$$
$$x + 2y \geq 6$$



$$52) x - y > -1$$
$$4x - y \geq 2$$



53) $2x - y \leq 3$
 $x + 2y \geq 4$



Write the slope-intercept form of the equation of the line through the given point with the given slope.

54) through: $(-5, -3)$, slope = undefined

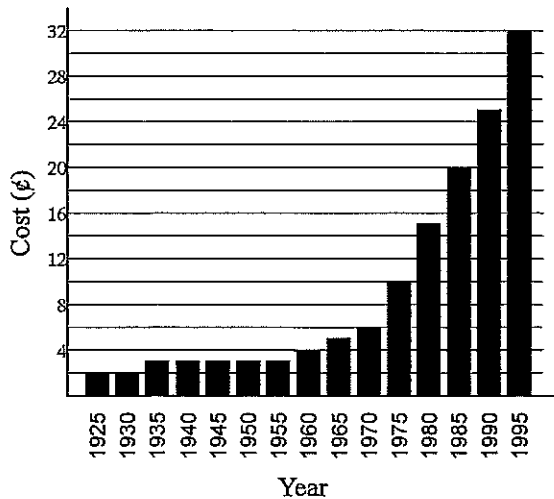
55) through: $(-1, 0)$, slope = 4

Write the standard form of the equation of the line described.

56) through: $(-3, -4)$, perp. to $y = -x$

Find the mode, median, mean, and sample standard deviation for each data set.

57) Cost of a Stamp



58) Car Weights (kg)

1,010	1,100	1,165	1,240	1,255
1,290	1,330	1,410	1,410	1,465
1,620	1,630	1,640	1,690	1,695
1,695	1,970			

Find the midpoint of the line segment with the given endpoints.

59) $(8, 8), (-1, -12)$

60) $(-7, -6), (-2, 5)$

61) 8 qt. of a 45% sugar solution was mixed with 10 qt. of pure water. Find the concentration of the new mixture.

Find each product.

62) $(3n - 1)(2n + 7)$

63) $(-6x - 4)(-8x^2 + 3x - 3)$

64) $(6 + 7b)(6 - 7b)$

65) $(4m + 5)^2$

Simplify.

66) $(\sqrt{5} + \sqrt{3})(-5\sqrt{5} + \sqrt{3})$

Name the set or sets to which each number belongs.

67) 0

68) $\sqrt{7}$

69) -9

Evaluate each using the values given.

70) $q + q - r + |r|$; use $q = 1$, and $r = -5$

71) $|c|(b + c + 8)$; use $b = -7$, and $c = -4$

Solve each problem.

72) What is 18% of 106?

73) 160 is what percent of 155?

74) What is 81% of 127?

Simplify each expression.

75) $(8n^2 + n - 4n^3) - (4n^2 + n - n^4) + (4 + 4n^2 - 2n^3 - 6n^4)$

76) $(v^2 - 8 + 6v) - (5 + 5v^3 - 8v^2) - (8v^3 - 2v^2 - 1 + 5v)$

Simplify.

77) $2\sqrt{27} - 2\sqrt{8} - 3\sqrt{45} + 3\sqrt{3}$

78) $-\sqrt{2} - 2\sqrt{12} - 2\sqrt{2} + 3\sqrt{45}$

Simplify. Use absolute value signs when necessary.

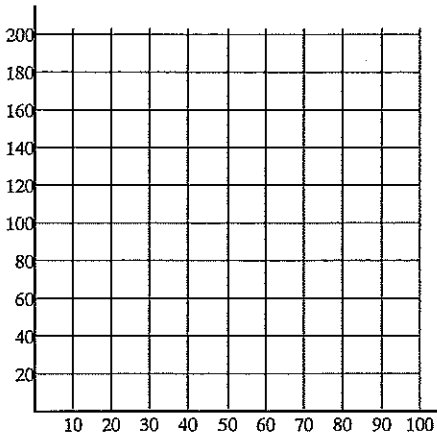
79) $-\sqrt{100x^4y^3z}$

80) $5\sqrt{243x^3y^3z^5}$

Construct a scatter plot. State if there appears to be a positive correlation, negative correlation, or no correlation. When there is a correlation, identify the relationship as linear, quadratic, or exponential.

81)

X	Y	X	Y	X	Y
10	203	70	1	80	0.4
20	58.8	70	1.5	90	0.1
30	20.3	70	1.5	100	0.1
30	41.3				



Solve each system by elimination.

82) $10x + 2y = -4$
 $-20x - 5y = 15$

Solve each system by substitution.

83) $-5x + 2y = -12$
 $y = 4$

Solve the following word problems. Be sure to define your variable, write an equation, and write a sentence as your answer.

- 84) Darryl's school is selling tickets to a fall musical. On the first day of ticket sales the school sold 11 adult tickets and 8 child tickets for a total of \$233. The school took in \$78 on the second day by selling 2 adult tickets and 4 child tickets. Find the price of an adult ticket and the price of a child ticket.
- 85) Carlos and Natalie each improved their yards by planting hostas and ornamental grass. They bought their supplies from the same store. Carlos spent \$104 on 8 hostas and 12 bunches of ornamental grass. Natalie spent \$75 on 9 hostas and 3 bunches of ornamental grass. What is the cost of one hosta and the cost of one bunch of ornamental grass?
- 86) A plane traveled 630 miles to Shanghai and back. The trip there was with the wind. It took 7 hours. The trip back was into the wind. The trip back took 21 hours. Find the speed of the plane in still air and the speed of the wind.
- 87) Wilbur left school and traveled toward the train station at an average speed of 65 mph. Totsakan left at the same time and traveled in the opposite direction with an average speed of 75 mph. How long does Totsakan need to travel before they are 420 mi. apart?

Divide.

88) $(16r^3 + 24r^2 + 8r) \div 8r^3$

89) $(a^3 + 30a^2 + a) \div 10a^2$

90) $(4v^3 + 4v^2 + 16v) \div 4v^3$

Factor each completely.

91) $-45r^2 + 235r + 210$

92) $20x^2 + 175x - 250$

93) $-9r^2 + 3r + 2$

94) $9k^2 + 21k + 10$

95) $30x^2 - 85x + 50$

Simplify. Your answer should contain only positive exponents.

96) $4xy^{-4} \cdot 2x^3y^{-4} \cdot 4x^3y^3$

97) $4n^4 \cdot 4nm^4$

$$98) 3u^4v^4 \cdot 3v^4$$

$$99) x^2y^2 \cdot 2y^{-4}$$

$$100) 2x^{-1}y^2 \cdot 4y$$