Solve each equation.

1. $-3x - 9 = -27$	2. $25 + 2(n + 2) = 30$	3. $-9b - 6 = -3b + 48$
4. $5 - (m - 4) = 2m + 3(m - 1)$	5. $-24 - 10k = -8(k + 4) - 2k$	6. $f - (-19) = 11f + 23 - 20f$
7. $\frac{3}{4}d - \frac{1}{2} = \frac{3}{8} + \frac{1}{2}d$	8. $-0.5g + 13 = 3g$	9. $-5(h + 12) - (4h - 2) = h - 8$
10. $\lvert 3x + 4 \rvert = 16$	11. $3\lvert x - 5 \rvert = 27$	12. $-8\lvert 2x - 6 \rvert + 4 = -60$

Solve each word problem algebraically.

13. The sum of two consecutive integers is one less than three times the smaller integer. Find the two integers.	14. The length of a rectangular picture is 5 inches more than three times the width. Find the dimensions of the picture if its perimeter is 74 inches.

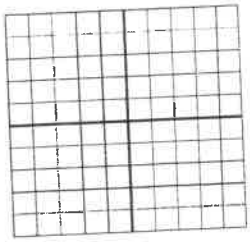
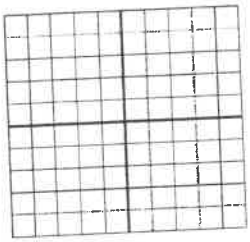
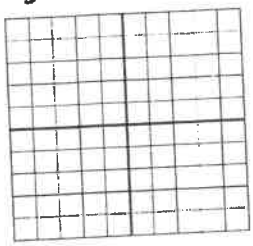
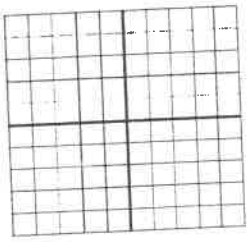
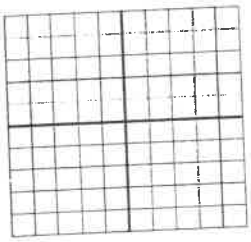
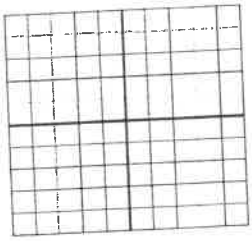
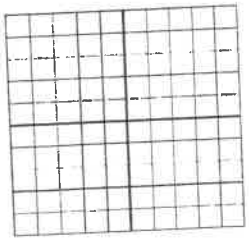
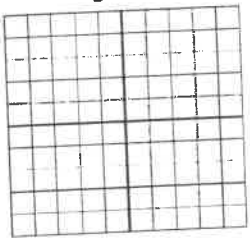
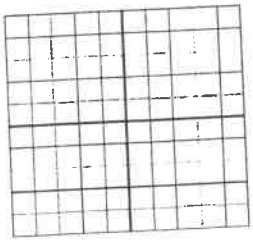
Solve each inequality. Graph the solution on a number line.

15. $-6x + 3 > -39$	16. $25 - 3(n - 2) \geq -8n + 6$
17. $8g - 6(g + 1) < 4(2g - 9)$	18. $7k + 1 \leq 8$ or $-7 < k - 10$
19. $-4 < 3b + 2 \leq 20$	20. $9 < -3m < 24$
21. $y + (-6) \geq -13$ or $-3y + 8 > -7$	22. $\|2x + 5\| < 13$
23. $7\|w - 6\| \geq 21$	24. $-2\|3m\| + 3 < -51$

Find the slope of the line that passes through the pair of points.

25. (9, -3) and (9, -8)	26. (-8, 5) and (3, -6)	27. (7, -1) and (15, 9)

Graph each line.

28. $y = -\frac{3}{2}x + 2$ 	29. $y = x - 3$ 	30. $y = \frac{1}{3}x + 5$ 
31. $2x - y = -2$ 	32. $x + y = 4$ 	33. $3x + 4y = -12$ 
34. $y + 3 = \frac{1}{2}(x + 2)$ 	35. $y - 1 = \frac{2}{3}(x - 3)$ 	36. $y - 2 = 0$ 

Write the equation of the line in point-slope, slope-intercept, and standard form.

37. Line passing through point (3, 5) with a slope of 1	38. Line passing through points (-4, 2) and (0, 3)	39. Line passing through points (1, 3) and (2, 5)

Determine whether the lines are parallel, perpendicular, or neither. Justify your answer.

40. $y = 2x - 8$
$y = \frac{1}{2}x + 6$

41. $y = x$
$x + y = -2$

42. $3x + 2y = 18$
$y + 4 = -\frac{3}{2}(x - 4)$

Write the equation of the line parallel to the given line that passes through the given point in slope-intercept form.

43. $y = -4x - 2$; $(0, -1)$

44. $2x - y = -4$; $(2, 5)$

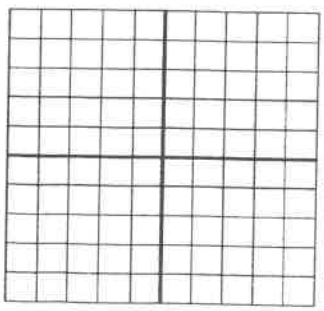
Write the equation of the line perpendicular to the given line that passes through the given point in slope-intercept form.

45. $y = \frac{2}{3}x - 9$; $(-6, -2)$

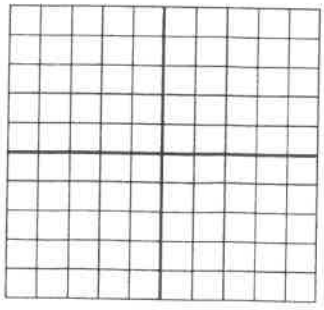
46. $4x + y = -6$; $(4, 5)$

Graph the solution to each linear inequality.

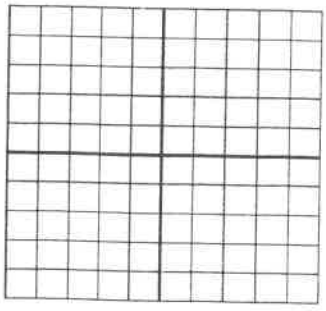
47. $y \leq -4x - 3$



48. $2x - y < 1$

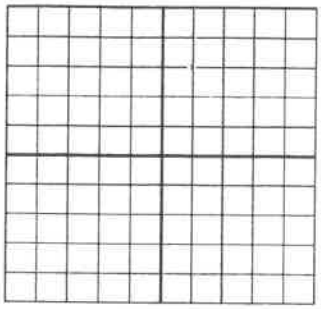


49. $x + 3y > 3$

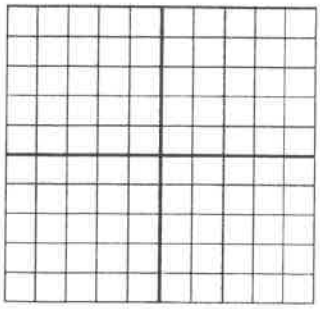


Solve each system of equations by graphing.

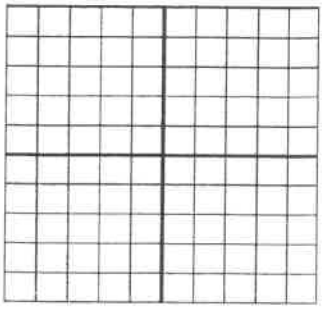
50. $\begin{cases} y = \frac{1}{2}x - 4 \\ y = -x - 1 \end{cases}$



51. $\begin{cases} y = 2x + 1 \\ -y = -2x + 1 \end{cases}$



52. $\begin{cases} x - 2y = 4 \\ -3x + 2y = -8 \end{cases}$



Solve each system of equations using substitution.

53. $\begin{cases} y = 2x + 3 \\ 5x - 2y = -6 \end{cases}$

54. $\begin{cases} x + 4y = 5 \\ -2x + 5y = 16 \end{cases}$

55. $\begin{cases} 9y - 7x = -13 \\ -9x + y = 15 \end{cases}$

Solve each system of equations using elimination.

56. $\begin{cases} 3x - 7y = -29 \\ -4x + 7y = 27 \end{cases}$

57. $\begin{cases} -4x - 8y = -48 \\ 8x + 3y = -34 \end{cases}$

58. $\begin{cases} 3x - 7y = 21 \\ 6x = 14y + 42 \end{cases}$

Solve each word problem using a system of equations.

59. Joe bought 5 apples and 4 bananas for \$6. Dawn bought 3 apples and 6 bananas for \$6.30. How much does each apple and each banana cost?

60. Wesley and Brian have a total of 87 baseball cards. Wesley has 30 less than twice as many cards as Brian. How many baseball cards do they each own?

Simplify each expression completely. Write your answer using only positive exponents.

61. $x^6 \cdot x^4$	62. $(5^3)^2$	63. $-6a^2b^{-4}c \cdot 4ab^2$
64. $\frac{a^3b^{-6}}{c^{-2}}$	65. $\left(\frac{-2x^6y}{3z^5}\right)^3$	66. $\left(8w^3q^{-5}\right)^0$
67. $\frac{24d^5f^{-5}g^8}{36d^{-3}f^9g^2}$	68. $\left(2b^{-3}d^6\right)^4 \cdot 3b^7d$	69. $\left(\frac{-4a^4b^2c^{-1}}{6a^9}\right)^{-1}$

Find each product or quotient. Write your answer in Scientific Notation.

70. $\left(9.8 \times 10^3\right)\left(2.4 \times 10^7\right)$	71. $\frac{9.3 \times 10^3}{3 \times 10^9}$	72. $\frac{4.5 \times 10^{13}}{9.0 \times 10^7}$

Find the new amount.

73. The population of Watesville decreases at a rate of 1.6% per year. If the population was 62,500 in 2014, what will it be in 2020?	74. A population of 30 bunnies is increasing at a rate of 40% per year. How many bunnies will there be in 5 years?	75. If you \$15,000 in an account with a 4.5% interest rate, compounded quarterly, how much money will you have in 25 years?

Classify each polynomial by its degree and number of terms.

76. $8x^3 - 9x$	77. $-2 - 4x^2 + 7x$	78. $8x^2y^2$	79. $6x + 5$

Find each sum or difference. Write your answer in Standard Form.

80. $(2h^3 + 6h) + (3h^3 - 7h - 3)$	81. $(8x - 4x^2 + 3) - (7x^2 - 9)$	82. $(-14a^2 - 5) - (5a^2 + 6a - 7)$

Find each product. Write your answer in Standard Form.

83. $5x^3(9x^2 + 4x - 5)$	84. $(x + 4)(x - 3)$	85. $(3n - 8)(4n - 7)$
86. $(2x + 3)(x^2 + x + 3)$	87. $(6x + 1)^2$	88. $4g(2g - 9)(2g + 9)$

Simplify each expression completely. Write your answer in Standard Form.

89. $(x + 2)(x + 8) + (4x^2 + 8x - 3)$	90. $(x + 5)(x - 5) - 6x(x + 1)$

Simplify each radical.

119. $\sqrt{90}$	120. $\sqrt{54a^3b^4}$	121. $\sqrt{600x^2y^2z}$

Simplify each radical expression.

122. $\sqrt{18} - \sqrt{50}$	123. $2\sqrt{5}(\sqrt{3} + 8\sqrt{4})$	124. $\frac{5}{\sqrt{3}}$
125. $7\sqrt{3} + 2\sqrt{12} - 3\sqrt{27}$	126. $(\sqrt{2} + 3\sqrt{3}) \cdot (\sqrt{6} - 4\sqrt{2})$	127. $\frac{2}{\sqrt{5} - \sqrt{3}}$

Solve each radical equation.

128. $\sqrt{3x} - 27 = 0$	129. $\sqrt{2x + 11} = \sqrt{6x - 7}$	130. $\sqrt{4x + 1} = x - 1$