

Chapter 1**Simplify each expression.**

1. $-3(2-6) - 2^2$

2. $-4^2 + (-3)^2$

3. $-(4+1) - 2(-5+3)^2$

Evaluation of Expressions.

4. Evaluate $-3x^2 + 2x$ for $x = -2$

5. Evaluate $y^2 - 2xy$ for $x = 3$ and $y = -2$

Simplify.

6. $-(-3x+2) - 2(4x-3)$

7. $-(-3x^2+2x) - 2(4x^2-3x)$

Chapter 2**Solve for x.**

8. $\frac{3}{2}x - 9 = 0$

9. $-35 = -7 - 4x$

10. $-3x - 3 = -9 - x$

11. $3x + 18 = -17 - 2x$

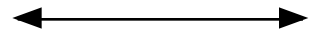
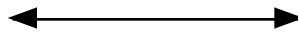
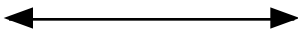
12. $-3(2x + 4) = -2x + 8$

Solve the inequality and graph each solution on a number line:

13. $-3x + 9 < -12$

14. $-6 \leq -2(x - 8)$

15. $7 < 2x + 11$



Chapter 3

16. Find **three** numbers whose sum is 70 if the second number is 2 less than the first number and the third number is 8 less than twice the first number.

17. Find the sides of a rectangle if the length is 6 less than twice the width. The perimeter is 36 cm.
18. Find the 3 sides of a **triangle** if the second side is 9 less than twice first side and the third side is 5 more than the first side. The perimeter of the triangle is 44 feet.
19. Tom has budgeted his monthly expenses for gas, food and rent in the following manner. He will spend \$120 more for food than he does for gas. He will spend six times the amount for rent as he does for gas. How much should he budget for each of them if he has a total of \$360 a month to spend on these items.

Chapter 4

Simplify. Answer with positive exponents.

20. $(4x^3y^4)^2$

21. $(2x^3y^4)(-5x^2y^2)$

22. $\frac{6x^7y^5}{8x^3y^5}$

23. $(2xy^3)(3x^2y^4)^2$

24. $(3x^{-3}y^4)^{-2}$

25. $(x^3y^{-4})(-2x^{-5}y)$

26. $\frac{-10x^7y^{-5}}{6x^{-1}y^{-2}}$

27. $\frac{3x^{-4}y^6}{(x^2y^{-2})^{-2}}$

Multiply and simplify each expression.

28. $2x(5x-2) - 3x^2(3x-5)$

29. $(2x-1)(3x+1)$

30. $(4x-5)(2x-3)$

Chapter 5

Factor completely.

31. $14x^2 - 8x$

32. $x^2 - 13x - 48$

33. $x^2 - 8x + 16$

34. $x^2 + 25$

35. $25x^2 - 9$

36. $3x^3 - 18x^2 + 24x$

37. $2x^2 + 2x - 12$

38. $3x^2 - 4x - 4$

39. $4x^2 + 5x - 6$

Solve for x.

40. $4x^2 - 12x = 0$

41. $x^2 - 8x + 16 = 0$

42. $2x^2 - 20x + 32 = 0$

43. $x^2 = 7x + 8$

44. $9x^2 = 25$

45. $2x^2 - 9x + 10 = 0$

Chapter 6**Simplify.**

46. $\frac{x^2 - 5x - 14}{x^2 + x - 2}$

47. $\frac{x^2 - 3x - 4}{x^2 - 2x} \cdot \frac{x^2 - 4}{x^2 + 3x + 2}$

48. $\frac{3}{x-3} - \frac{3}{4x}$

49. $\frac{2}{3x-3} + \frac{x}{2x-2}$

$$50. \quad \frac{x}{x^2 - 4} + \frac{3}{2x - 4}$$

$$51. \quad \frac{5}{2x - 2} - \frac{x - 4}{x^2 - x}$$

Solve For x.

$$52. \quad \frac{5}{4} - \frac{1}{2x} = \frac{1}{x} + 2$$

Chapter 7

Find the **slope** of the line through the given 2 points.

$$53. \quad (-2, -4) \text{ and } (2, -4)$$

$$54. \quad (3, -4) \text{ and } (-1, 5)$$

$$55. \quad (-2, -4) \text{ and } (-2, -11)$$

Write the **equation of the line** given the slope and a point in slope–intercept form: $y = mx + b$

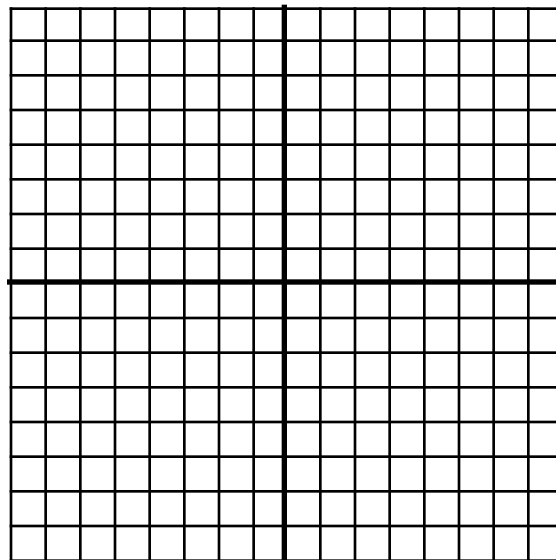
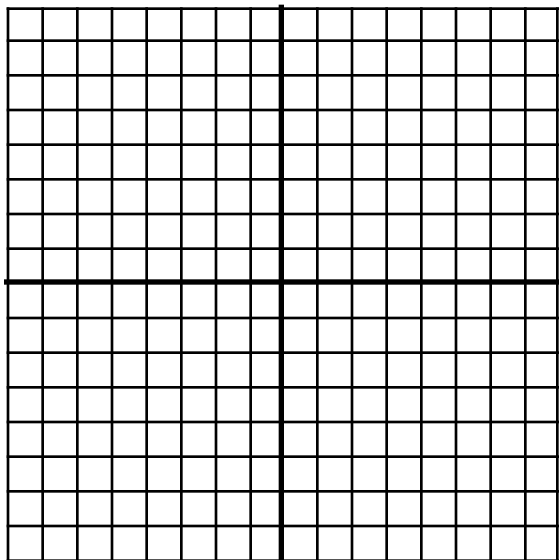
56. $m = \frac{-3}{2}$ and passes through (4,2)

57. passes through (2,-1) and (4,7)

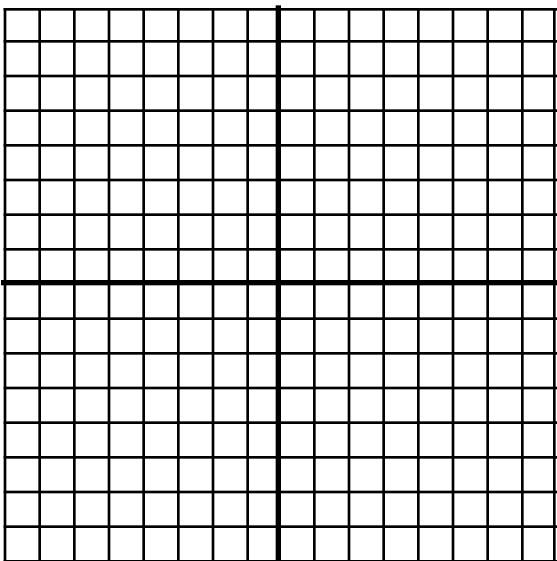
Graph each **equation** on the graph below it.

58. $y = \frac{-3}{4}x - 1$

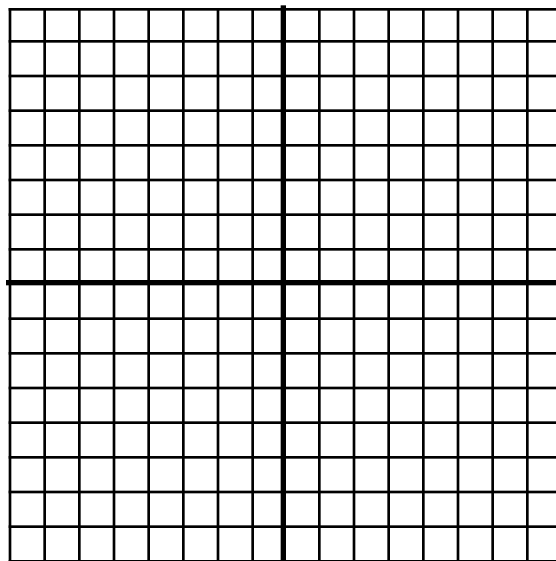
59. $3x - y = 4$



60. $y = 4$

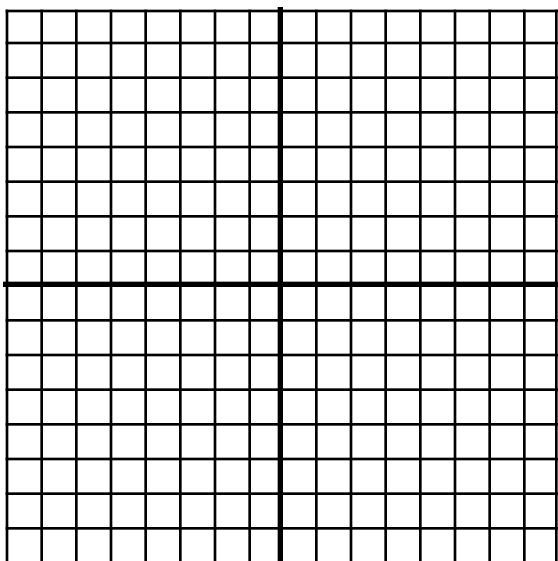


61. $y = \frac{-4}{3}x$

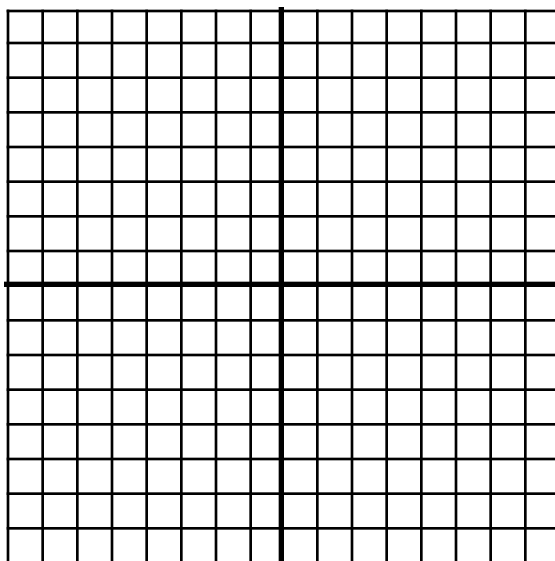


Graph each **inequality** on the graph below it.

62. $2x + 5y \leq 10$



63. $x - 2y < 6$



Chapter 8.

Solve each system of equations by any method.

$$64. \begin{cases} 2x + 4y = -6 \\ x = 2y - 5 \end{cases}$$

$$65. \begin{cases} 3x + y = -5 \\ -4x + 2y = 20 \end{cases}$$

$$66. \begin{cases} 2x + y = 8 \\ -4x - 2y = 10 \end{cases}$$

$$67. \begin{cases} 4x - 2y = 8 \\ 3x + 3y = -3 \end{cases}$$

Chapter 9.

68. $3\sqrt{120x^9y^{12}}$

69. $(2\sqrt{5xy})(3\sqrt{15x^3})$

70. $3\sqrt{20} - 8\sqrt{5} - \sqrt{45}$

71. $(2 - \sqrt{3})(1 - \sqrt{3})$

72. $(\sqrt{2} + \sqrt{5})(3\sqrt{2} - \sqrt{5})$

73. $\frac{3}{\sqrt{6}}$

74. $\frac{4}{\sqrt{10}}$

75. $\frac{4}{3 + \sqrt{2}}$

76. $\frac{3}{\sqrt{5} - \sqrt{3}}$

Quadratic Equations. Solve for x . You must use the quadratic equation for each problem and show the work. Use NRN or \emptyset if needed.

77. $2x^2 + 5x - 12 = 0$

78. $3x^2 + 2x - 2 = 0$

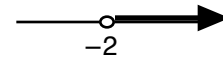
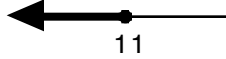
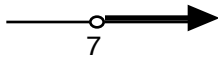
79. $4x^2 - 3x + 1 = 0$

80. $2x^2 - 5x + 1 = 0$

Final Review Answers

MATH 100

1. 8 2. -7 3. -13 4. -16 5. 16 6. $-5x + 4$
 7. $-5x^2 + 4x$ 8. $x = 6$ 9. $7 = x$ 10. $3 = x$ 11. $x = -7$ 12. $-5 = x$
 13. $x > 7$ 14. $x \leq 11$ 15. $-2 < x$



16. The numbers are 20, 18 and 32 17. The rectangle is 8 cm. by 10 cm.
 18. The sides are 12, 15 and 17 19. Gas is \$30, food is \$150, and rent is \$180

20. $16x^6y^8$ 21. $-10x^5y^6$ 22. $\frac{3x^4}{4}$ 23. $18x^5y^{11}$ 24. $\frac{x^6}{9y^8}$ 25. $\frac{-2}{x^2y^3}$
 26. $\frac{-5x^8}{3y^3}$ 27. $3y^2$ 28. $-9x^3 + 25x^2 - 4x$ 29. $6x^2 - x - 1$ 30. $8x^2 - 22x + 15$

31. $2x(7x - 4)$ 32. $(x - 16)(x + 3)$ 33. $(x - 4)(x - 4)$ 34. DNF

35. $(5x - 3)(5x + 3)$ 36. $3x(x - 4)(x - 2)$ 37. $2(x - 2)(x + 3)$ 38. $(3x + 2)(x - 2)$

39. $(4x - 3)(x + 2)$ 40. $x = 0$ or $x = 3$ 41. $x = 4$ or $x = 4$ 42. $x = 8$ or $x = 2$

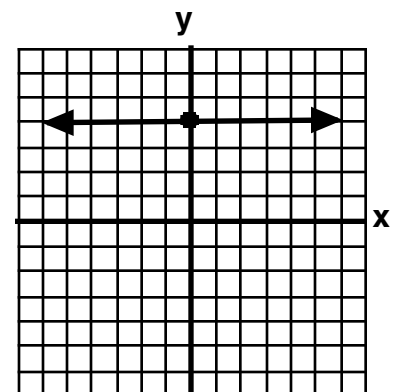
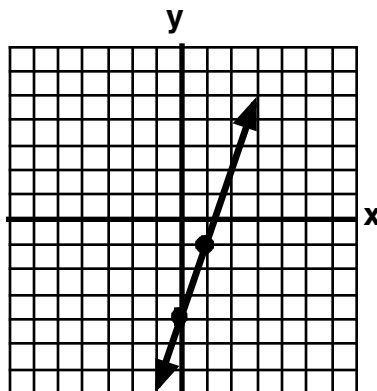
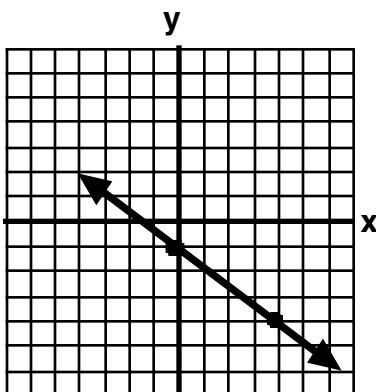
43. $x = 8$ or $x = -1$ 44. $x = \frac{5}{3}$ or $x = \frac{-5}{3}$ 45. $x = \frac{5}{2}$ or $x = 2$ 46. $\frac{x - 7}{x - 1}$

47. $\frac{x - 4}{x}$ 48. $\frac{9(x + 1)}{4x(x - 3)}$ 49. $\frac{3x + 4}{6(x - 1)}$ 50. $\frac{5x + 6}{2(x + 2)(x - 2)}$

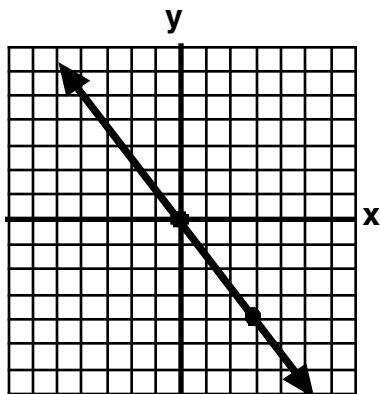
51. $\frac{3x + 8}{2x(x - 1)}$ 52. $x = -2$ 53. $m = 0$ 54. $m = \frac{-9}{4}$

55. m is undefined 56. $y = \frac{-3}{2}x + 8$ 57. $y = 4x - 9$

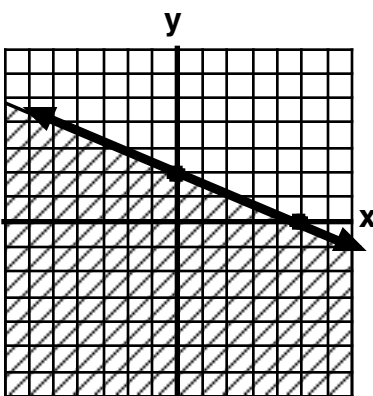
58. $y = \frac{-3}{4}x - 1$ 59. $3x - y = 4$ 60. $y = 4$



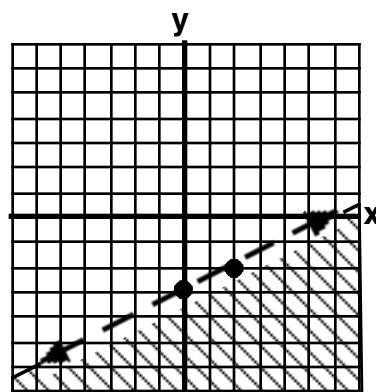
61. $y = \frac{-4}{3}x$



62. $y \leq \frac{-2}{5}x + 2$



63. $y < \frac{1}{2}x - 3$



64. $(-4, \frac{1}{2})$

65. $(-3, 4)$

66. \emptyset

67. $(1, -2)$

68. $6x^4y^6\sqrt{30x}$

69. $30x^2\sqrt{3y}$

70. $-5\sqrt{5}$

71. $5 + 2\sqrt{3}$

72. $1 - 7\sqrt{10}$

73. $\frac{\sqrt{6}}{2}$

74. $\frac{2\sqrt{10}}{5}$

75. $\frac{4(3 - \sqrt{2})}{7}$

76. $\frac{3(\sqrt{5} + \sqrt{3})}{2}$

77. $x = \frac{3}{2}$ or $x = -4$

78. $x = \frac{-1 \pm 1\sqrt{7}}{3}$

79. NRN or \emptyset

80. $x = \frac{5 \pm \sqrt{17}}{4}$