

ALGEBRA 2 GP MIDTERM EXAM REVIEW

YELLOW PROBLEMS → MUST SHOW WORK ON SEPARATE PAPER

CHAPTER

1

NAME _____

DATE _____

Cumulative Review

For use after Chapter 1

Use a number line to order the real numbers. (1.1)

1. $5, -8, \sqrt{5}, -\frac{2}{3}$

2. $4.3, 0, -\frac{5}{8}$

3. $0, 6, -\frac{3}{2}, 3.2$

4. $3.7, -\frac{5}{4}, 0, 7$

5. $5, -4.5, \sqrt{9}, \frac{4}{3}$

6. $2, -\frac{4}{5}, \sqrt{8}, -3.2$

Tell what property the statement illustrates. (1.1)

7. $3 + 2 = 2 + 3$

8. $3 + (4 + 5) = (3 + 4) + 5$

9. $6 + 0 = 6$

10. $5 + (-5) = 0$

11. $4(2 + 5) = 4(2) + 4(5)$

12. $6\left(\frac{1}{6}\right) = 1$

Select and perform an operation to answer the question. (1.1)

13. What is the sum of 25 and -8 ?

14. What is the sum of -5 and -6 ?

15. What is the difference of 26 and -9 ?

16. What is the difference of -3 and 6?

17. What is the product of 4 and -2 ?

18. What is the product of -5 and 6?

19. What is the quotient of 6 and $-\frac{1}{3}$?

20. What is the quotient of -5 and $-\frac{1}{2}$?

Perform the given operation. Give the answer with the appropriate unit of measure. (1.1)

21. $4\frac{1}{2}$ feet + $5\frac{1}{3}$ feet

22. $23\frac{1}{2}$ liters - $15\frac{1}{3}$ liters

23. $(4.5 \text{ yards})\left(\frac{\$3.50}{1 \text{ yard}}\right)$

24. $\left(\frac{42 \text{ feet}}{1 \text{ second}}\right)\left(\frac{60 \text{ seconds}}{1 \text{ minute}}\right)$

Evaluate the power. (1.2)

25. 4^3

26. $(-4)^3$

27. -4^3

28. 5^2

29. $(-5)^2$

30. -5^2

Evaluate the expression for the given value of x . (1.2)

31. $x - 9$ when $x = 8$

32. $4x(x + 3)$ when $x = -2$

33. $x^2 + 4$ when $x = 5$

34. $x^3 + 2$ when $x = -4$

35. $2x^2 + 5x - 1$ when $x = 2$

36. $4x^4 - 3x$ when $x = 5$

Simplify the expression. (1.2)

37. $4x^2 + 3x - 2x^2 + 7x$

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

39. $4(2n - 3) + 5(n - 3)$

40. $3a - 2b + 4a - 6b$

41. $4(a - b) + 5(2a + 3b) + 5b$

42. $4(b^2 + b) - 3(2b^2 - b)$

Solve the equation. (1.3)

43. $2x + 3 = 7$

44. $5x = 30 + 20$

45. $2a + 8 = 4a + 12$

46. $3b + 11 = 5 - 4b$

47. $2.3a - 1.8 = 2.8$

48. $3(2a + 7) = 5a + 22$

49. $\frac{1}{2}m - 4 = 2m - 16$

50. $\frac{1}{5}x + \frac{2}{3} = \frac{2}{5}x - \frac{1}{3}$

51. $6x - 3 = -4(2x + 5) + 45$

Solve for y ; find the value of y when $x = 3$. (1.4)

52. $2x + y = 8$

53. $-5x - 2y = 8$

54. $5x - 6y = 10$

55. $4x - 2y + 6 = 0$

56. $-x = 4y - 6$

57. $\frac{2}{3}x - \frac{3}{4}y = 6$

Cumulative Review

For use after Chapter 1

Solve the formula for the indicated variable. (1.4)

58. *Simple interest*
Solve for r : $I = Prt$

60. *Circumference of a circle*
Solve for d : $C = \pi d$

59. *Volume of a prism*
Solve for h : $V = lwh$

61. *Area of a rhombus*
Solve for d_1 : $A = \frac{1}{2}d_1d_2$

Solve the inequality. Graph its solution. (1.6)

62. $4y > 24$

63. $-5y + 6 \leq 26$

64. $2x + 8 > 5x + 14$

65. $2(x - 4) < 8$

66. $-x + 6 > 5x - 12$

67. $4.6 + 2x \geq -8.4$

Solve the compound inequality. Graph its solution. (1.6)

68. $2x + 5 > 7$ or $3x - 9 > 12 + 2x$

69. $-6 < 6x < 12$

70. $-0.5 < 5x + 1.5 < 3.5$

71. $-0.7 \leq 2x + 1.3 \leq 5.3$

Solve the absolute value equation. (1.7)

72. $|2x - 6| = 12$

73. $|4n + 7| = 1$

74. $|\frac{1}{2}x - 3| = 4$

75. $|7 + 2x| = 9$

76. $|\frac{1}{3}x - 3| = 9$

77. $|8 - 3x| = 11$

Solve the inequality. Graph its solution. (1.7)

78. $|x + 1| < 8$

79. $|3x + 3| > 9$

80. $|7x + 2| \geq 14$

81. $|4 - 2x| > 8$

82. $|2 + \frac{1}{3}x| \geq 4$

83. $|4x - 5| \leq 5$

84. *Driving Time* You drive to school Monday, Wednesday, and Friday. The school is 34 miles from your home on an interstate highway. The rest of your driving is in town. In a typical week, you drive 300 miles. Gasoline costs \$1.28 per gallon, and your car's fuel efficiency is 23 miles per gallon on the highway and 13 miles per gallon in town. How much do you spend on gasoline when you drive in town? (1.5)

85. *Consumer Debt* Last year 1.4 million Americans sought help from credit counseling agencies. Five hundred four thousand of these people, with total debts of \$2.3 billion, got into formal debt management or "workout" programs. What percent chose not to go into a formal program? (1.5)

86. *Travel Services* A local travel service advertised a round trip to Toronto by motorcoach to see a popular stage show for \$205. The same trip was available to attend a concert for \$195. The travel service sold 14 tickets to the stage show. How many tickets to the concert were sold if the total sales were \$5990? (1.5)

87. *Buying Slacks* A local store is advertising slacks for \$31.99, which is 20% off the original price. You purchase 3 pairs of slacks. How much did you save from the original price? (1.5)

Cumulative Review

For use after Chapters 1–2

Tell what property the statement illustrates. (1.1)

1. $4 + (-4) = 0$

2. $2 + (5 + 7) = (2 + 5) + 7$

3. $3(2 + 4) = 3(2) + 3(4)$

Select and perform an operation to answer the question. (1.1)

4. What is the sum of 13 and -6 ?

5. What is the difference of 23 and -8 ?

6. What is the product of 4 and -8 ?

7. What is the quotient of 4 and $-\frac{2}{3}$?

Evaluate the expression for the given value of x . (1.2)

8. $x + 8$ when $x = -2$

9. $x^2 - 2$ when $x = -3$

10. $3x^2 - x + 1$ when $x = 5$

11. $3x^4 + x - 1$ when $x = 2$

Solve the equation. (1.3)

12. $2x + 1 = 8$

13. $2a + 1 = 4a - 8$

14. $6x = 4 - 10x$

15. $4.5a - 1.7 = 7.3$

16. $3(2a - 8) = 8a - 12$

17. $\frac{1}{3}x + 4 = \frac{7}{9}x$

Solve the formula for the indicated variable. (1.4)

18. Area of trapezoid

Solve for b_1 . $A = \frac{1}{2}(b_1 + b_2)$

19. Circumference of circle

Solve for r . $C = 2\pi r$

Solve the compound inequality. Graph its solution. (1.6)

20. $3x + 7 > 10$ or $-2x > 4$

21. $15 < 5x < 25$

22. $-0.3 \leq 0.2x + 0.5 \leq 0.9$

23. $-3x + 1 < -11$ or $5x + 2 < 7$

Solve the absolute value equation or inequality. (1.7)

24. $|3x - 4| = 12$

25. $|\frac{1}{2}x - 6| = 8$

26. $|7 - 2x| = 13$

27. $|x + 2| > 6$

28. $|6x - 4| + 8$

29. $|3 - 5x| < 13$

Evaluate the function when $x = 2$. (2.1)

30. $f(x) = x$

31. $g(x) = 5x$

32. $r(x) = x^2$

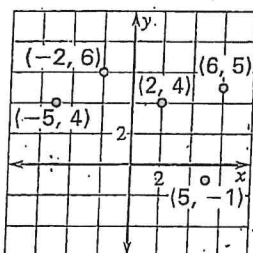
33. $g(x) = 3x - 5$

34. $h(x) = -2x^2 + 1$

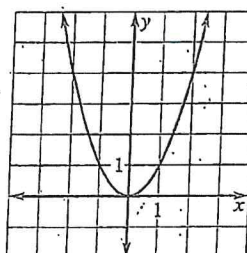
35. $j(x) = x^3 + 2x^2$

Use the vertical line test to determine whether the relation is a function. (2.1)

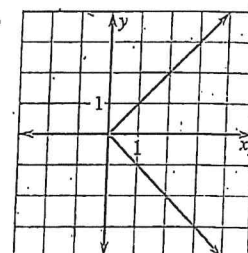
36.



37.



38.



Cumulative Review

For use after Chapters 1–2

Tell whether the lines are *parallel*, *perpendicular*, or *neither*. (2.2)

39. Line 1: through $(-1, 8)$ and $(7, 9)$

40. Line 1: through $(3, 4)$ and $(-5, 8)$

Line 2: through $(2, 5)$ and $(10, 6)$

Line 2: through $(1, 2)$ and $(3, 6)$

Graph the equations. (2.3)

41. $y = 3x - 4$

42. $y = -\frac{2}{3}x + 5$

43. $3x - 2y = 4$

44. $x = 5$

45. $y = -\frac{2}{3}$

46. $5x - 10y = 20$

Write the equation of the line that passes through the given points. (2.4)

47. $(4, 2)$ and $(7, 8)$

48. $(5, -2)$ and $(-3, 4)$

49. $(4, 0)$ and $(-1, 8)$

50. $(-2, 1)$ and $(3, 1)$

51. $(4, 5)$ and $(4, 9)$

52. $(0, 5)$ and $(-5, 0)$

The variables x and y vary directly. Write an equation that relates the variables. Then find y when $x = 5$. (2.4)

53. $x = 3, y = 7$

54. $x = -2, y = 4$

55. $x = \frac{1}{2}, y = 4$

56. $x = 8, y = -2$

57. $x = -6, y = -6$

58. $x = 0.2, y = 0.8$

~~Draw a scatter plot of the data. Then approximate the best fitting line for the data. (2.5)~~

| | | | | | | | | |
|----------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 59. | x | 3 | 3 | 0 | 1 | 1 | 2 | 4 |
| | y | 7 | 9 | 1 | 1 | 5 | 1 | 5 |

Graph the inequality in a coordinate plane. (2.6)

60. $5x - 2y > 10$

61. $4x < -20$

62. $8y > 10$

63. $y > \frac{1}{3}x + 3$

64. $0.25x + 1 > 2$

65. $3x < -\frac{1}{2}y$

Evaluate the function for the given value of x . (2.7)

$$f(x) = \begin{cases} 3x, & \text{if } x > 5 \\ -x + 2, & \text{if } x \leq 5 \end{cases}$$

66. $f(3)$

67. $f(8)$

68. $f(-3)$

69. $f(5)$

70. $f(0)$

71. $f\left(\frac{19}{3}\right)$

Graph the function. Then identify the vertex, tell whether the graph opens up or down, and tell whether the graph is wider, narrower, or the same width as the graph of $y = |x|$. (2.8)

72. $y = |x| + 7$

73. $y = -|x| + 8$

74. $y = -2|x + 2| + 1$

75. $y = |x| - \frac{3}{2}$

76. $y = \frac{1}{2}|x| + 2$

77. $y = |x| - 4$

Cumulative Review

For use after Chapters 1-3

Tell what property the statement illustrates. (1.1)

1. $3 \cdot 4 = 4 \cdot 3$

2. $4 \cdot \frac{1}{4} = 1$

3. $(2 \cdot 3) \cdot 5 = 2 \cdot (3 \cdot 5)$

Select and perform an operation to answer the question. (1.1)4. What is the sum of 55 and -8 ?5. What is the difference of -2 and -8 ?6. What is the product of 9 and -5 ?7. What is the quotient of -15 and $-\frac{3}{2}$?**Simplify the expression. (1.2)**

8. $7x^2 + 5x - 9 + 3x^2 - 2x - 7$

9. $3(x - 8) + 5(2x - 6)$

10. $4(x^2 - x + 7) + 3(2x^2 + x)$

11. $8(4x + 2y) - 2(5x - 8y)$

Solve the equation. Check your solution. (1.3)

12. $5x + 7 = 22$

13. $3a + 5 = 7a + 21$

14. $2(x + 8) = -2(x - 12)$

15. $3(-2x + 8) = 4(x + 2) - 4$

16. $\frac{9}{2}x - 2 = 3x + 4$

17. $\frac{1}{2}x + \frac{5}{3} = \frac{2}{3}x - \frac{5}{6}$

Solve the equation for y . (1.4)

18. $x + xy = 8$

19. $6x - 4y = 12$

20. $-x = 3y + 18$

21. $6x + 5y + 30 = 0$

22. $-xy + 8 = x$

23. $x = 12 + xy$

Solve the inequality. Then graph the solution. (1.6-1.7)

24. $3(n - 4) < 9$

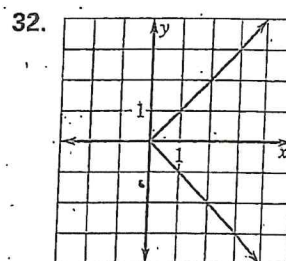
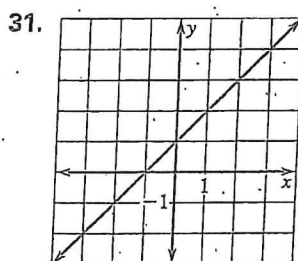
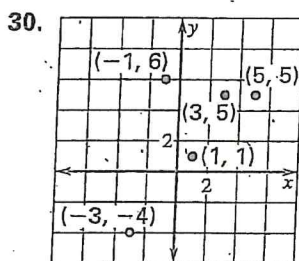
25. $4 - 4x > 5(3 + x)$

26. $\frac{1}{2}x + 8 \geq 12$

27. $3x + 7 \geq 10$

28. $4x - 2 < 6$ or $3x + 1 > 22$

29. $-5 < 2x + 1 < 15$

Use the vertical line test to determine whether the relation is a function. (2.1)**Tell which line is steeper. (2.2)**33. Line 1: through $(-3, 5)$ and $(0, -1)$ Line 2: through $(1, 10)$ and $(6, -14)$ 34. Line 1: through $(4, 5)$ and $(8, 5)$ Line 2: through $(6, 3)$ and $(8, -4)$ 35. Line 1: through $(2, 3)$ and $(3, 6)$ Line 2: through $(0, 7)$ and $(2, 9)$ 36. Line 1: through $(0, 0)$ and $(4, 2)$ Line 2: through $(-3, -2)$ and $(-4, -4)$

Cumulative Review

For use after Chapters 1-3.

Find the slope and y -intercept of the line. (2.3)

37. $y = 4x + 6$

38. $y = -\frac{2}{3}x - 5$

39. $y = 10$

40. $3x - 2y = 14$

41. $x + 8y = 16$

42. $9x + y = 0$

Write an equation of the line that passes through the given point and has the given slope. (2.4)

43. $(0, 7), m = 5$

44. $(-6, 4), m = 0$

45. $(5, 1), m = \frac{2}{3}$

46. $(4, -1), m = -\frac{2}{3}$

47. $(5, 0), m = -4$

48. $(-2, -1), m = -3$

Graph the inequality in a coordinate plane. (2.6)

49. $x \leq -3$

50. $2y \geq -10$

51. $y \geq 3x + 2$

52. $y < -4 - 2x$

53. $3x + 4y > 12$

54. $\frac{2}{3}x + \frac{1}{2}y > 1$

Graph the absolute value function. Then identify the vertex, tell whether the graph opens up or down, and tell whether the graph is wider, narrower, or the same width as the graph of $y = |x|$. (2.8)

55. $f(x) = -|x - 7| + 1$

56. $f(x) = |x + 3| - 2$

57. $f(x) = -|x| + 2$

58. $f(x) = |x + 2|$

59. $f(x) = 2|x| + 2$

60. $f(x) = -\frac{1}{2}|x| + 4$

Graph the system of linear inequalities. (3.3)

61. $y \geq 5$

$x \leq 2$

62. $x + y \geq 4$

$2x - y \leq 3$

63. $5x + 3y \leq 6$

$2x - 4y > 8$

64. $y > x - 5$

$y < 2x + 1$

65. $x - y \geq 5$

$3x + y \leq -8$

66. $x > -6$

$x + y \geq 0$

~~Solve the system using either the linear combination method or the substitution method. (3.9)~~

~~$x + y = 2$~~

~~$x + y = 8$~~

~~$x + y = 10$~~

~~$2y + 2 = 10$~~

~~$5 + 2y = 10$~~

~~$2x + y = 2$~~

~~$3y = 8$~~

~~$4y = 5$~~

~~$6x + 4y = 2$~~

70. **Size of House** In 1997, the chairman of an Oriental Holding Company was reported to have sold a property for \$98.8 million. At \$2,863 per square foot, it was the world's most expensive house. How big was the house to the nearest square foot? (1.1)71. **Surface Area** Lake Superior, the largest of the Great Lakes, has a surface area of 20,600 square miles. This is 3300 square miles larger than five times the size of Lake Ontario, the smallest. What is the surface area of Lake Ontario? (1.5)

Cumulative Review

For use after Chapters 1-5

Evaluate the expression. (1.1)

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

2. $(-5)^2$

3. -5^2

Simplify and evaluate the expression for the given value of the variable. (1.2)

4. $x^2 + 8 - x$ when $x = -2$

5. $3a^2 + a - 2a^2$ when $a = 3$

6. $2(n + 1) - 4(n - 2)$ when $n = -1$

Solve the equation. (1.3)

7. $\frac{1}{2}x + \frac{1}{3} = 2x - \frac{1}{5}$

8. $3(2x - 1) = -4(-x + 1) + 5$

Solve the inequality and draw its graph. (1.5)

9. $3x + 1 < 2x + 3$

10. $2x - 3 \geq 5x + 1$

11. $-4x + 3 > 3x$

Solve the compound inequality. (1.6)

12. $3x + 1 < 2x + 9$ or $5x + 3 < 53$

13. $-4 < -2x + 4 < 12$

Solve the absolute value equation or inequality. (1.7)

14. $|3x - 5| = 10$

15. $|4x - 2| > 10$

16. $|x - 2| < 6$

Evaluate the function when $x = 5$. (2.1)

17. $g(x) = -x^2 + 2$

18. $f(x) = (-x)^2 + 2$

19. $f(x) = (x - 3)^2 + 5$

Find the slope of the line passing through the points. (2.2)

20. $(4, -3)$ and $(6, 5)$

21. $(2, 0)$ and $(8, 0)$

22. $(5, 8)$ and $(5, 14)$

Tell whether the two lines are *parallel*, *perpendicular*, or *neither*. (2.2)

23. Line 1: through $(-5, 3)$ and $(8, 4)$

24. Line 1: through $(5, -9)$ and $(-2, 5)$

Line 2: through $(2, 7)$ and $(1, 20)$

Line 2: through $(6, 3)$ and $(9, 9)$

Write the equation with the given slope and y -intercept. (2.3)

25. $m = 5; b = 3$

26. $m = 0; b = 4$

27. $m = \frac{2}{3}; b = -2$

Graph the equation. (2.3)

28. $y = -\frac{2}{3}x + 5$

29. $y = 4x - 6$

30. $y = 5x$

Write the equation of the line that passes through the given point and has the given slope. (2.4)

31. $(5, -1); m = \frac{1}{3}$

32. $(6, 0); m = -2$

33. $(4, 5); m = 1$

Graph the inequality. (2.6)

34. $y \geq \frac{2}{3}x - 3$

35. $y < -x + 5$

36. $2x - y < 4$

Cumulative Review

For use after Chapters 1-5

Solve the linear system. (3.2, 3.6)

37. $2x + 3y = 14$
 $-x + 5y = 19$

38. $3x + 5y = 14$
 $2x - 3y = -16$

39. $2x + 3y - z = 11$
 $4x - y + 2z = -1$
 $3x + 2y + 2z = 0$

Graph the system of linear inequalities. (3.5)

40. $y < x - 2$
 $y > -3x + 1$

41. $y > 3x - 2$
 $y > -2x + 1$

42. $3x + y \geq 5$
 $-2x + y \leq 3$

Perform the indicated operation. (4.1)

43. $\begin{bmatrix} 1 & 3 & 5 \\ 2 & 2 & 0 \end{bmatrix} + 3 \begin{bmatrix} 3 & 5 & 3 \\ 2 & 2 & 0 \end{bmatrix}$

Use Cramer's Rule to solve the system. (4.3)

44. $2x + 3y = 11$
 $x - 4y = 11$

45. $2x + 2y = 0$
 $5x - 3y = 11$

46. $x + 2y + 3z = 14$
 $2x + y + 3z = 5$
 $3x - 2y + 5z = 8$

Use matrices to solve the linear system. (4.5)

47. $2x + 4y = 22$
 $3x - y = 13$

48. $3x - 2y = 7$
 $5x + 4y = 9$

49. $x + 2y + z = 10$
 $2x + 3y + 4z = 10$
 $2x + 3y + 5z = 8$

Graph the quadratic function. Label the vertex and the axis of symmetry. (5.1; 5.3)

50. $y = (x - 3)^2 + 5$

51. $y = 3(x - 1)(x + 1)$

52. $y = 3x^2 + 6x - 2$

Solve the equation. (5.3, 5.5)

53. $3(x - 5)^2 = 27$

54. $x^2 + 12x + 3 = 0$

55. $x^2 + 6x + 8 = 0$

Write the expression as a complex number in standard form. (5.4)

56. $(4 - 3i) - (2 + 5i)$

57. $(7 + 3i)(2 - i)$

58. $(-6 + 2i) + (3 - 5i)$

59. $(-3 - 2i)(4 + 5i)$

60. $\frac{3 + 2i}{4 - i}$

61. $\frac{4 + i}{4 - i}$

Cumulative Review

For use after Chapters 1-6

Evaluate the expression for the given values of the variables. (1.2)

1. $3x - 5$ when $x = -3$ 2. $4x - (8x + 4)$ when $x = \frac{1}{4}$ 3. $x^2 - 5x$ when $x = -2$
 4. $x^3 - 4x^2 + x$ when $x = -2$ 5. $x^3 + 2(x + 3)$ when $x = -3$ 6. $-x^2 + 5x$ when $x = -2$

Solve the equation. (1.3)

7. $4x + 8 = 32$ 8. $m - 15 = 3m + 4$ 9. $4(3x - 5) = x + 3$
 10. $\frac{3}{2}x + 4 = 2x + 1$ 11. $\frac{1}{2}x + \frac{3}{4} = \frac{3}{2}x - \frac{29}{4}$ 12. $\frac{2}{5}x + \frac{2}{3} = \frac{1}{10}x + \frac{11}{3}$

Solve the inequality. Then graph the solution. (1.6)

13. $2x + 5 \geq 9$ 14. $5 - 2x < 15 + 3x$
 15. $4x + 2 > 8$ or $4x + 2 < -10$ 16. $3x - 7 > 8$ or $2x + 1 \leq -9$
 17. $-5 < 3x + 1 < 10$ 18. $-0.25 \leq 0.5x + 1 \leq 0.75$

Tell which line is steeper. (2.2)

19. Line 1: through $(-2, 5)$ and $(3, 7)$
 Line 2: through $(0, 8)$ and $(-4, 3)$
 20. Line 1: through $(0, -5)$ and $(3, -8)$
 Line 2: through $(7, 1)$ and $(9, -10)$
 21. Line 1: through $(4, 6)$ and $(5, 9)$
 Line 2: through $(-3, 1)$ and $(5, 4)$
 22. Line 1: through $(-5, 6)$ and $(-2, -3)$
 Line 2: through $(-2, 8)$ and $(1, -9)$

Graph the equation using standard form. Label any intercepts. (2.3)

23. $3x + y = 8$ 24. $2x - y = 7$ 25. $4x + 3y = 12$
 26. $5x - 4y = -2$ 27. $y = 8$ 28. $x = 6$

Write an equation of a line using the given information. (2.4)

29. The line passes through the point $(0, 5)$ and has a slope of 3.
 30. The line passes through the point $(2, -4)$ and has a slope of $\frac{2}{5}$.
 31. The line has a slope of $-\frac{3}{4}$ and a y -intercept of 5.
 32. The line passes through the point $(2, 4)$ and is parallel to $x = 7$.
 33. The line passes through the point $(2, -1)$ and is perpendicular to the line $y = \frac{2}{3}x + 5$.
 34. The line passes through the point $(-4, 5)$ and is parallel to the line $y = -\frac{2}{3}x + 7$.

Evaluate the function for the given value of x . (2.7)

- $f(x) = \begin{cases} 3x, & \text{if } x \leq 2 \\ x - 1, & \text{if } x > 2 \end{cases}$ 35. $f(3)$ 36. $f(2)$
 37. $f(-1)$ 38. $f(0)$

Tell how many solutions the linear system has. (3.1)

39. $4x + 2y = 8$ 40. $3x + 2y = 6$ 41. $5x - 6y = 7$
 $8x + 4y = 16$ $-6x - 4y = 8$ $2x + 3y = 5$

Cumulative Review

For use after Chapters 1-6

Solve the system using an algebraic method. (3.2)

42. $3x - 4y = 17$

$2x - y = 8$

45. $6x - 2y = -6$

$9x + 3y = 15$

43. $4x + y = 6$

$8x - 2y = -4$

46. $3x - \frac{1}{5}y = -7$

$\frac{1}{2}x + \frac{2}{5}y = 1$

44. $3x + 8y = 3$

$2x - 5y = 2$

47. $-2x + 5y = 0.5$

$4x - 3y = 1.1$

~~Evaluate the determinant of the matrix. (4.6)~~

48. $\begin{bmatrix} 2 & 3 \\ 1 & 2 \end{bmatrix}$

49. $\begin{bmatrix} 2 & 1 \\ 0 & 2 \end{bmatrix}$

50. $\begin{bmatrix} 3 & 2 \\ 1 & 2 \\ 2 & 2 \end{bmatrix}$

51. $\begin{bmatrix} 2 & 1 & 2 \\ 1 & 1 & 0 \\ 1 & 2 & 2 \end{bmatrix}$

52. $\begin{bmatrix} 0 & 1 & 2 \\ 2 & 1 & 2 \\ 0 & 1 & 2 \end{bmatrix}$

53. $\begin{bmatrix} 1 & 2 & 1 \\ 0 & 0 & 0 \\ 2 & 2 & 2 \end{bmatrix}$

Graph the quadratic function. (5.1)

54. $y = x^2 + 2x + 3$

55. $y = -x^2 + 4x + 5$

56. $y = 2x^2 + 8x - 3$

57. $y = (x - 1)^2 + 3$

58. $y = 2(x + 4)^2 - 2$

59. $y = -\frac{1}{2}(x + 5)^2 + 2$

Solve the quadratic equation. (5.2, 5.3)

60. $2x^2 + 5 = 11$

61. $\frac{1}{3}(x - 3)^2 = 2$

62. $-x^2 + 2 = -14$

63. $4x^2 + 12x + 9 = 0$

64. $x^2 - 9 = 0$

65. $3x^2 - 13x - 10 = 0$

Find the absolute value of the complex number. (5.4)

66. $3 - 4i$

67. $4 + 2i$

68. $1 - i$

69. $-1 + 5i$

70. $-3 - i$

71. $2 + \sqrt{7}i$

Use the quadratic formula to solve the equation. (5.6)

72. $2x^2 + x - 5 = 0$

73. $10x^2 - 9x + 1 = 0$

74. $x^2 - 8x + 9 = 0$

75. $3x^2 - x - 4 = 0$

76. $x^2 - 18 = 0$

77. $2x^2 + 4x = x^2 - 1$

~~Factor using any method. (6.4)~~

~~78. $9x^2 - 1$~~

~~79. $x^2 + 3x^2 + 2$~~

~~80. $6x^2 + 15x^2 + 6x$~~

~~81. $3x^2 - 81x$~~

~~82. $4x^2 + 97x$~~

~~83. $6x^2 + 9x^2 + 2x + 3$~~

~~Divide using synthetic division. (6.5)~~

~~84. $(2x^2 - 5x + 3) \div (x - 2)$~~

~~85. $(x^2 - 2x - 3) \div (x - 1)$~~

~~86. $(3x^2 - 12x + 6) \div (x - 1)$~~

~~87. $(x^3 - 2x^2 + x - 25) \div (x - 3)$~~

88. **Dimensions of a box** An open box with a volume of 32 in.^3 is made from a square piece of metal by cutting 2-inch squares from each corner and then folding up the sides. Find the dimensions of the piece of metal required to make the box. (5.5)

LESSON

6.1

NAME _____

DATE _____

Practice B

For use with pages 323–328

Use the properties of exponents to evaluate the expression.

1. $(3^4)(3^{-2})$

2. $(5^2)^3$

3. $\left(\frac{2}{3}\right)^3$

4. $\frac{8^4}{8^6}$

5. $(7^6)(7^{-6})$

6. $\frac{4 \cdot 4^3}{4^6}$

7. $\frac{(3^2)^5}{3^8}$

8. $\left(\frac{1}{2}\right)^{-4}$

9. $\frac{5^6}{(5^3)^2}$

Simplify the expression.

10. $x^3 \cdot x^2$

11. $\frac{2y^3}{y^5}$

12. $(3x)^2$

13. $\left(\frac{y}{2}\right)^3$

14. $(4x^3)^4$

15. x^0y^{-2}

16. $\frac{5x^2y}{2x^{-1}y^3}$

17. $\frac{-3xy}{9x^3y^{-4}}$

18. $\frac{(3x)^2}{6x^5}$

LESSON

6.3

NAME _____

DATE _____

Practice C

For use with pages 338–344

Find the sum or difference.

1. $(2x^3 + 3x^2 - 5x + 2) + (-3x^3 - 6x^2 + 2)$
2. $(4x^2 - 5x + 1) - (x^3 + x^2 - 3x + 4)$
3. $(-2x^2 + 7x - 7) - (3x^2 + 2x - 1)$
4. $(2x^3 - 6x + 4) + (3x^4 - 2x^3 + 4x^2 + 1)$
5. $(\frac{1}{2}x^2 + 3x + 1) + (x^2 + \frac{2}{3}x - 3)$
6. $(\frac{2}{5}x^2 + 2x - 1) + (\frac{3}{5}x^2 - 7x + \frac{1}{3})$
7. $(\frac{1}{5}x^3 + 3x^2 + \frac{4}{3}) - (\frac{1}{2}x^3 + 2x + \frac{1}{3})$
8. $(\frac{3}{8}x^2 + \frac{2}{3}x - 5) - (\frac{3}{4}x^2 + \frac{1}{2}x)$

Find the product.

9. $(3x + 5)(2x + 5)$
10. $(x - 7)(5x + 3)$
11. $(3x - 4)(8x - 1)$
12. $(x + 1)(x^2 - 2x + 1)$
13. $(x + 1)(2x^2 + 3x - 4)$
14. $(2x - 1)(x^2 + 3x + 2)$
15. $(2x + 1)(x^2 - x - 3)$
16. $(-x^2 + 3)(x^2 + 6x - 2)$
17. $(x^3 + x^2 + 3)(x^2 - 4x + 3)$
18. $(x^3 - 2x + 1)(x^3 + x^2 - 5)$
19. $(2x^3 + x)(x^4 + 3x^3 - 2x^2 + 1)$
20. $(6x + 5)(6x - 5)$
21. $(\frac{1}{2}x + 7)(\frac{1}{2}x - 7)$
22. $(\frac{4}{3}x + 5)^2$
23. $(5x - 2)^2$
24. $(\frac{1}{3}x - \frac{2}{3})^2$
25. $(x + 2)^3$
26. $(x - 3)^3$
27. $(2x + 1)^3$
28. $(3x - 5)^3$
29. $(2x + 3y)^3$
30. $(4x - 3y)(4x + 3y)$
31. $(6x + y)^2$
32. $(x - 4y)^2$

Find the product of the binomials.

33. $(x + 3)(x + 2)(x - 1)$
34. $(x - 5)(x + 3)(x - 2)$
35. $(2x + 1)(x + 3)(x + 1)$
36. $(2x - 3)(2x - 5)(x - 1)$