

CHAPTERS
1-13 **End-of-Course Test**

For use after Chapters 1-13

Evaluate the expression.

1. $35 - [6 + (4^2 \div 2)]$ 2. $\frac{27 - 13}{4^2 - 9}$
3. $7x^2 - 4x$ when $x = 3$ 4. $-\sqrt{x}$ when $x = 121$
5. A golf course charges \$45 to play 18 holes of golf. It charges \$24.75 to play 9 holes. Find the cost per hole for each game. Which game costs less per hole played?
6. You have 26 CDs and plan to buy 2 more each month. Write a rule for the number of CDs as a function of the number of months from now. Identify the independent and dependent variables, the domain, and the range.

Find the sum, difference, product, or quotient.

7. $-12 + (-13)$ 8. $27 - (-15)$ 9. $-17 - 18$
10. $(-0.2)(-0.8)$ 11. $-15 \div \frac{3}{5}$ 12. $-\frac{14}{21} \div \left(-\frac{6}{15}\right)$
13. Find the mean of the numbers: $-3, 5, 8, -6, 12, 9, -4$.

Solve the equation.

14. $\frac{k}{7} - 9 = 33$ 15. $17 = -5x - 6x + 14$
16. $\frac{1}{2} = 4(5x - 3)$ 17. $2(x + 3) = \frac{3}{4}(8x - 12)$
18. An architect is making a scale drawing of a building using a scale of 1 inch : 4 feet. The height of the building on the drawing is 23 inches. What is the height of the actual building?
19. 55% of a zoo's animals are herbivores. How many of the zoo's 360 animals are herbivores?

Identify the slope and y-intercept of the line with the given equation.

20. $y = -\frac{9}{7}x + 2$ 21. $9x + 3y = 6$

Write an equation in slope intercept form of the line that passes through the given point and has the given slope m .

22. $(1, 3); m = 4$ 23. $(-2, 5); m = -3$

Answers

1. _____
2. _____
3. _____
4. _____
5. _____
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7. _____
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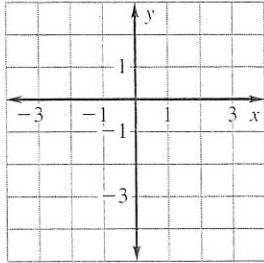
CHAPTERS
1-13

End-of-Course Test *continued*

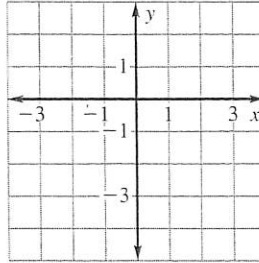
For use after Chapters 1-13

Graph the equation.

24. $y = 3x - 4$

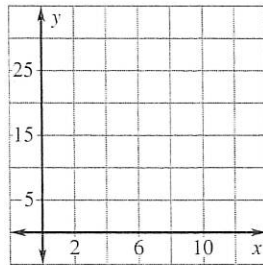


25. $2x - 3y = 1$



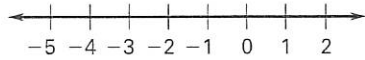
26. Make a scatter plot of the data. Draw a line of fit. Then write an equation of the line.

x	0	2	4	6	8
y	8	12	16	20	24

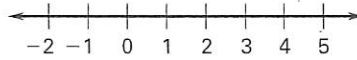


Solve the inequality, if possible. Graph your solution.

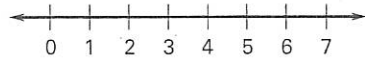
27. $7 - 3x > 16$



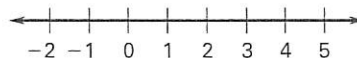
28. $4(8x - 1) < 3(9x + 2)$



29. $9 \leq 2x + 5 \leq 17$

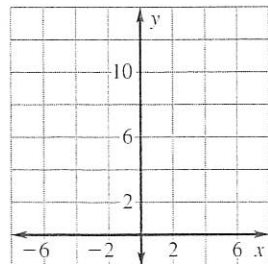


30. $2|x - 1| + 3 > 7$

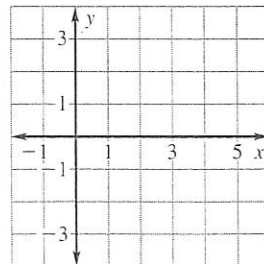


Graph the inequality.

31. $y > x + 7$



32. $y \leq \frac{1}{2}x - 3$



Solve the linear system.

33. $9x - 7y = 31$
 $-9x + 3y = -39$

34. $3x + 8y = 2$
 $5x - 4y = 38$

Answers

24. See left.

25. See left.

26. See left.

27. See left.

28. See left.

29. See left.

30. See left.

31. See left.

32. See left.

33. See left.

34. See left.

35. See left.

36. See left.

37. See left.

38. See left.

**CHAPTERS
1-13**

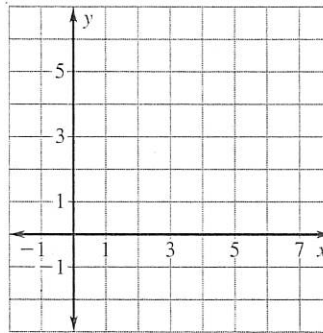
End-of-Course Test *continued*

For use after Chapters 1-13

35. Graph the system of linear inequalities.

$$y < 2x - 3$$

$$y \geq \frac{1}{2}x + 2$$



Simplify the expression. Write your answers using only positive exponents.

36. $\frac{6^7 \cdot 6^{12}}{6^8}$

37. $\left(\frac{y^7}{z^2}\right)^3$

38. $\frac{(3mn)^2}{4m^3} \cdot \frac{(2m)^3}{n^4}$

39. Write 0.00093 in scientific notation.

In Exercises 40 and 41, use the following information.

Your parents open an account with an initial investment of \$6000. The account pays interest at a rate of 4% compounded yearly.

40. Write a function that models the account balance over time.

41. Use the function to find the account balance after 10 years.

Find the sum, difference, or product.

42. $(7a^2 - 3a + 14) + (9a^2 + 11a)$

43. $(b^3 - 2b^2 + 6b - 1) - (3b^3 + 11b)$

44. $(6c - 1)(2c + 7)$

45. $(9d + 7)(9d - 7)$

Factor the polynomial.

46. $2x^2 + 7x - 30$

47. $9y^2 + 66y + 121$

48. A frog jumps straight up off the ground with an initial vertical velocity of 2 feet per second. After how many seconds does the frog land on the ground?

Solve the equation. Round the solutions to the nearest hundredth, if necessary.

49. $12x^2 - 15 = 0$

50. $-t^2 + 2t + 15 = 0$

51. $4x^2 - 11x + 3 = 5x + 4$

52. $9x^2 + 4x + 7 = 3x^2 - 8$

Answers

35. See left.

36. _____

37. _____

38. _____

39. _____

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41. _____

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51. _____

52. _____

CHAPTERS
1–13

End-of-Course Test *continued*

For use after Chapters 1–13

Simplify the expression.

53. $\sqrt{36y^5}$

54. $\sqrt{14x} \cdot 3\sqrt{7xy}$

55. $\frac{11}{\sqrt{3}}$

Solve the equation. Check for extraneous solutions.

56. $\sqrt{x} - 11 = 0$

57. $\sqrt{2x - 7} = \sqrt{3x - 17}$

58. A right triangle has one leg that is 4 times as long as the other leg. The hypotenuse is $3\sqrt{17}$ inches. Find the length of the legs.

Given that y varies inversely with x , use the specified values to write an inverse variation equation that relates x and y . Then find y when $x = 18$.

59. $x = 6, y = 9$

60. $x = \frac{2}{3}, y = 12$

Divide.

61. $(3x^2 + 25x - 14) \div (x + 9)$

62. $(15x^2 + x + 1) \div (3x - 1)$

Solve the equation. Check your solutions.

63. $\frac{8}{y+8} = \frac{y}{6}$

64. $\frac{2}{x+4} + 1 = \frac{12}{x^2 + 9x + 20}$

65. There are 13 teams of cheerleaders at a competition. The order of performance is determined at random. What is the probability that your team performs first and your friend's team is second?
66. There are 24 members on a swim team. How many different combinations of 5 swimmers can be chosen to sit in the front row for a team photo.

In Exercises 67–69, use the following information. The test scores for an algebra class are: 75, 85, 97, 72, 86, 93, 91, 81, 85, 82, 88.

67. Find the mean, median, mode(s), and range of the data.

68. Make a stem-and-leaf plot of the scores.

69. Make a box-and-whisker plot of the scores.

Answers

53. _____

54. _____

55. _____

56. _____

57. _____

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59. _____

60. _____

61. _____

62. _____

63. _____

64. _____

65. _____

66. _____

67. _____

68. See left.

69. See left.

Chapters 1-13

End-of-Course Test

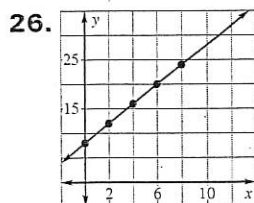
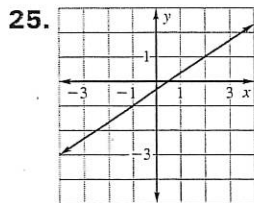
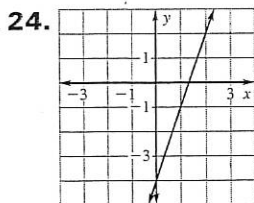
1. 21 2. 2 3. 51 4. -11 5. \$2.50, \$2.75, 18-holes 6. $y = 2x + 26$; independent variable: x , dependent variable: y , domain: $x \geq 0$, range: $y \geq 26$ 7. -25 8. 42 9. -35 10. 0.16

11. -25 12. $\frac{5}{3}$ 13. 3 14. 294 15. $-\frac{3}{11}$

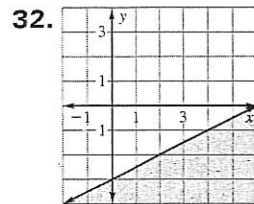
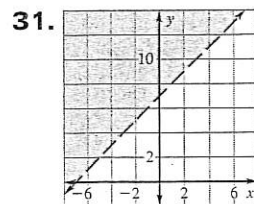
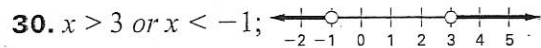
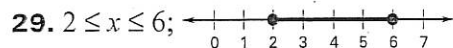
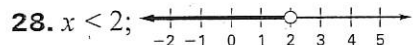
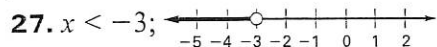
16. $\frac{5}{8}$ 17. $\frac{15}{4}$ 18. 92 ft 19. 198 animals

20. $m = -\frac{9}{7}$, $b = 2$ 21. $m = -3$, $b = 2$

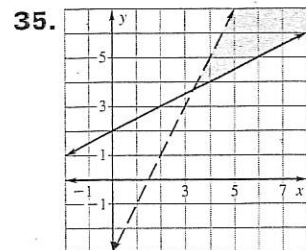
22. $y = 4x - 1$ 23. $y = -3x - 1$



$y = 2x + 8$



33. (5, 2) 34. (6, -2)



36. 6^{11} 37. $\frac{y^{21}}{z^6}$ 38. $\frac{18m^2}{n^2}$ 39. 9.3×10^{-4}

40. $y = a(1 + r)^t$ 41. \$8881.47

42. $16a^2 + 8a + 14$ 43. $-2b^3 - 2b^2 - 5b - 1$

44. $12c^2 + 40c - 7$ 45. $81d^2 - 49$

46. $(x + 6)(2x - 5)$ 47. $(3y + 11)^2$

48. 0.125 sec 49. -1.12, 1.12 50. -3, 5

51. 4.06, -0.06 52. no solution 53. $6y^2\sqrt{y}$

54. $21x\sqrt{2y}$ 55. $\frac{11\sqrt{3}}{3}$ 56. 121 57. 10

58. 3 in.; 12 in. 59. $y = \frac{54}{x}$; 3 60. $y = \frac{8}{x}$; $\frac{4}{9}$

61. $3x - 2 + \frac{4}{x+9}$ 62. $5x + 2 + \frac{3}{3x-1}$

63. -12, 4 64. -9, -2 65. $\frac{1}{156}$ 66. 42,504

67. 85; 85; 85; 25

68. $\begin{array}{r|l} 7 & 2 \ 5 \\ 8 & 1 \ 2 \ 5 \ 5 \ 6 \ 8 \\ 9 & 1 \ 3 \ 7 \end{array}$ Key: $7 \mid 2 = 72$

