

End-of-Course Test Algebra 1**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.

Perform the indicated operation. Write the answer with the correct number of significant digits.

7. $2.056 \text{ gal} + 0.47 \text{ gal}$

8. $137.48 \text{ oz} \div 3.5 \text{ oz}$

Solve the equation.

9. $\frac{k}{7} - 9 = 33$

10. $17 = -5x - 6x + 14$

11. $\frac{1}{2} = 4(5x - 3)$

12. $2(x + 3) = \frac{3}{4}(8x - 12)$

Solve the proportion. Check your solution.

13. $\frac{4}{7} = \frac{x}{56}$

14. $\frac{5}{6} = \frac{45}{x}$

15. $\frac{13}{w} = \frac{26}{w+5}$

16. $\frac{2m+7}{6} = \frac{5m-2}{5}$

Write the equation so that y is a function of x .

17. $8x - 4y = 20$

18. $4 + 5x = 20 - 10y$

19. 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?

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. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

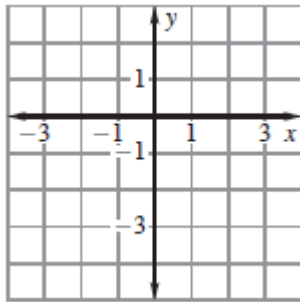
22. _____

23. _____

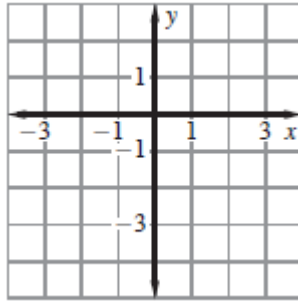
End-of-Course Test *continued*

Graph the equation.

24. $y = 3x - 4$

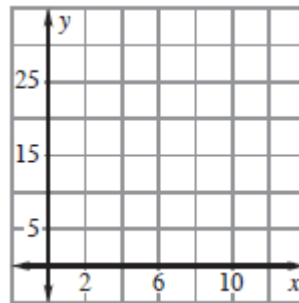


25. $2x - 3y = 1$



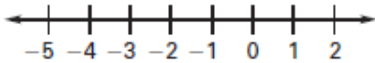
26. Make a scatter plot of the data. Draw a line of fit. Then write an equation of the line.

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

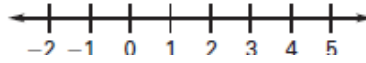


Solve the inequality, if possible. Graph your solution.

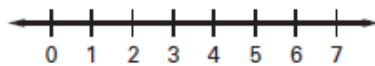
27. $7 - 3x > 16$



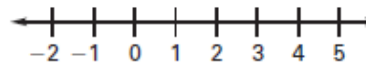
28. $4(8x - 1) < 3(9x + 2)$



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

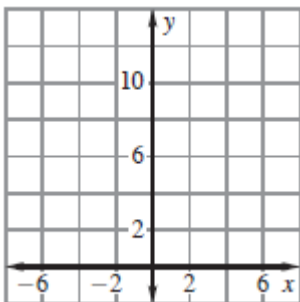


30. $2|x - 1| + 3 > 7$

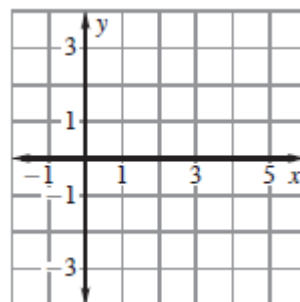


Graph the inequality.

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. _____

25. _____

26. _____

27. _____

28. _____

29. _____

30. _____

31. _____

32. _____

33. _____

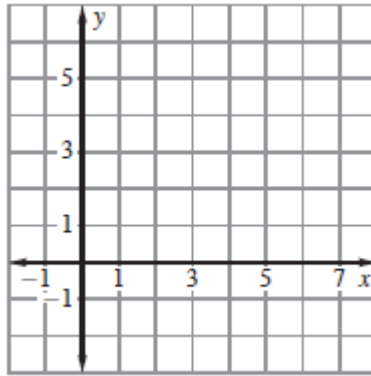
34. _____

End-of-Course Test *continued*

35. Graph the system of linear inequalities.

$$y < 2x - 3$$

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

*Answers*

35. _____

36. _____

37. _____

38. _____

39. _____

40. _____

41. _____

42. _____

43. _____

44. _____

45. _____

46. _____

47. _____

48. _____

49. _____

50. _____

51. _____

52. _____

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

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

End-of-Course Test *continued***Solve the equation using a system. Check each answer.**

53. $x + 9 = 24 + 3x - x^2$

54. $2x^2 + 2x + 13 = 8x^2 - 4x + 1$

55. Use the given information to decide which linear function has the greater maximum value.

- Linear Function 1 has a y-intercept of 8 and a slope of $\frac{3}{2}$.
- The table shows the coordinates of five points found on the line representing Linear Function 2.

x	-6	-3	0	3	6
y	-8	-3	2	7	12

In Exercises 56–58, use the following information. The test scores for an algebra class are: 75, 85, 97, 72, 86, 93, 91, 81, 85, 82, 88.

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

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

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

59. 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?

60. 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.

Find the probability of randomly drawing the given cards from a standard deck of 52 cards without replacement.

61. A club, then a red card

62. An ace, then a face card

Answers

53. _____

54. _____

55. _____

56. _____

57. _____

58. _____

59. _____

60. _____

61. _____

62. _____