

Algebra II summer math

Short Answer

Write an algebraic expression for the phrase.

1. 4 times the sum of q and p
2. -2 times the quantity q minus 3
3. the quotient of 6 times a number and 16

Simplify the expression.

4. $3[(15 - 3)^2 \div 4]$
5. $4(20 + 12) / (4 - 3)$
6. $3^3 \cdot 32 + 12 \div 4$
7. $-\frac{1}{8} - \frac{2}{7}$
8. $|18 - 6|$
9. $(-2)^5$
10. -5^4

11. $\frac{1}{2}(-12m + 38)$

12. $1.7m^2 + 6.5n - 4n + 2.5m^2 - n$

13. $\sqrt{6} + 2\sqrt{6}$

14. $4\sqrt{7} + 8\sqrt{63}$

15. Evaluate the formula $V = \frac{Bh}{3}$ for $B = 9 \text{ in.}^2$ and $h = 32 \text{ in.}$

16. Write the number 2.4 in the form $\frac{a}{b}$, using integers, to show that it is a rational number.

17. Evaluate $|-x - 2y|$ for $x = -2$ and $y = 3$.

18. Evaluate $b - 2a - c$ for $a = -7$, $b = 3$, and $c = -7$.

19. Evaluate $x(-y + z)$ for $x = 3$, $y = 3$, and $z = 1$.

20. Evaluate $7m + 2n - \frac{8p}{n}$ for $m = -4$, $n = 2$, and $p = 1.5$.

Solve the equation.

21. $-6 = \frac{x}{8} + 4$

22. $\frac{3}{7}x + 5 = 8$

23. $11 = -d + 15$

24. $2 = \frac{10 + z}{-3}$

25. $37 - 18 + 8w = 67$

26. $3(y + 6) = 30$

27. $\frac{5p}{7} - 18 = -43$

28. $3.4 = -13.6 + (-3.4c) + 1.7c$

29. $6(4.5y - 12) = 9$

30. $5x - 5 = 3x - 9$

31. $8d - 4d - 6d - 8 = 2d$

32. Find the unit rate for number of parts manufactured per hour if 1630 parts are made in 6 hours. Round to the nearest integer.

33. A 16-oz bottle of water costs \$1.44. What is the cost per ounce?

Solve the proportion.

34. $\frac{x-8}{5} = \frac{2}{4}$

35. $\frac{w+14}{4w+6} = \frac{3}{4}$

36. A van travels 220 miles on 10 gallons of gas. Write and solve a proportion to find how many gallons the van needs to travel 550 miles.
37. Two rectangles are similar. One has a length of 10 cm and a width of 8 cm, and the other has a width of 7 cm. Use a proportion to find the length of the second rectangle. Round to the nearest tenth if necessary.

Solve the inequality.

38. $\frac{3}{10} \geq k - \frac{3}{5}$

39. $\frac{1}{3} + x + \frac{2}{9} \geq \frac{5}{6}$

40. $-5x - 7 < 28$

41. $a + 8 - 2(a - 12) > 0$

42. $12 + 10w \geq 8(w + 12)$

43. $12x - 3x + 11 > 4x - (17 - 9x)$

44. The width of a rectangle is 33 centimeters. The perimeter is at least 776 centimeters.

a. Write and solve an inequality to find the length of the rectangle.

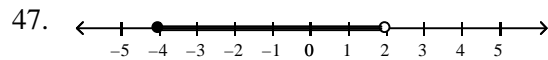
b. Write an inequality to find the area of the rectangle.

Write a compound inequality that represents each situation. Graph your solution.

45. all real numbers that are greater than -6 but less than 6

46. all real numbers at least -6 and at most 3

Write a compound inequality that the graph could represent.



48. Evaluate $f(x) = \frac{1}{3}x$ for $x = 4$.

49. Evaluate $f(x) = -x^2 + 1$ for $x = -3$.

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

50. $(-2, -3)$ $(4, 9)$

51. $(1, 7)$, $(10, 1)$

Find the slope and y-intercept of the line.

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

53. $14x + 4y = 24$

Write an equation of a line with the given slope and y-intercept.

54. $m = 1, b = 4$

55. $m = 3/2, b = -2$

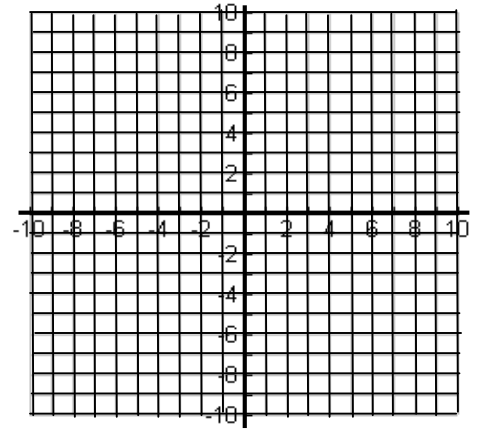
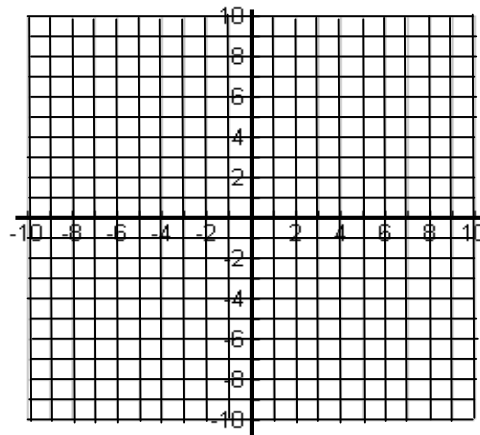
Find the x- and y-intercept of the line.

56. $2x + 3y = -18$

57. Write $y = \frac{2}{3}x + 7$ in standard form using integers.

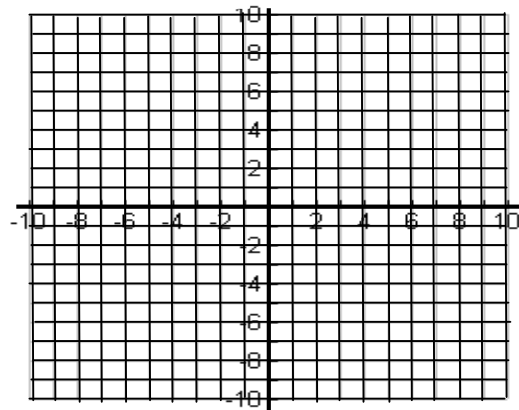
Graph the equation

58. $y = -2x + 3$



59. $y = -3$

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



Tell whether the lines for each pair of equations are *parallel*, *perpendicular*, or *neither*.

61. $7x - 4y = 4$
 $x - 4y = 3$

62. $y = -\frac{1}{2}x - 11$
 $16x - 8y = -8$

Simplify

63. $5x + 3 - 2x + 7 + 4x - 5$

64. $(-7x - 5x^4 + 5) - (-7x^4 - 5 - 9x)$

65. $(4w^2 - 4w - 8) - (2w^2 + 3w - 6)$

66. $(4u^3 + 4u^2 + 2) + (6u^3 - 2u + 8)$

Simplify

67. $2n(n^2 + 3n + 4)$

68. $8p(-3p^2 + 6p - 2)$

Simplify

69. $(3x - 7)(3x - 5)$

70. $(4x + 3)(2x + 5)$

71. $(2k + 3)(2k^2 - 4k - 3)$

72. $(8m + 7)^2$

73. $(2n + 2)(2n - 2)$

74. $(4m^2 - 5)(4m^2 + 5)$

Factor the expression.

75. $w^2 + 18w + 77$

76. $d^2 + 10d + 9$

77. $x^2 - x - 42$

78. $12d^2 + 4d - 1$

79. $6x^2 + 5x + 1$

80. $2x^3 + 4x^2 + 8x$

81. $21m^2 - 29m - 10$

82. $40p^2 - 13p - 36$

Solve the equation using square roots.

83. $7x^2 + 6 = 13$

84. $x^2 + 20 = 4$

Solve the equation using the zero-product property.

85. $(2x + 2)(5x - 5) = 0$

86. $-8x(10x - 1) = 0$

Solve the equation by factoring.

87. $z^2 - 6z - 27 = 0$

88. $3z^2 + 3z - 6 = 0$

89. $15 = 8x^2 - 14x$

90. $6x^2 - 17x + 13 = 20x^2 - 32$

Use the quadratic formula to solve the equation. If necessary, round to the nearest hundredth.

91. $2a^2 - 46a + 252 = 0$

92. $5y^2 - 8y = 2$

Use any method to solve the equation. If necessary, round to the nearest hundredth.

93. $7x^2 - 16x = 8$

94. $11x^2 = 8$

Simplify the radical expression.

95. $-4\sqrt{160}$

96. $\sqrt{144}$

Simplify the radical expression by rationalizing the denominator.

97. $\frac{4}{\sqrt{21}}$

98. $\frac{7\sqrt{100}}{\sqrt{500}}$

Solve the equation. Check your solution.

99. $4 = \sqrt{m} - 8$

100. $\sqrt{r+5} = 11$