Algebra 1 Name_____

Algebra Practice

Date_____ Period____

Solve each equation.

1) $|10k| = 30$

2) $|b + 5| = 1$

3) $|-2 + v| = 2$

4) $|4 + x| = 8$

5) $|3x| = 12$

6) $|a - 4| = 12$

7) $\left|\frac{n}{3}\right| = 4$

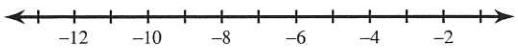
8) $\left|\frac{n}{9}\right| = 4$

9) $|n + 2| = 11$

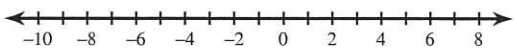
10) $|9x| = 36$

Solve each inequality and graph its solution.

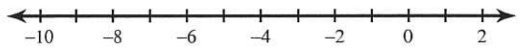
11) $|x + 8| \leq 4$



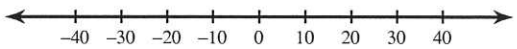
12) $|n + 1| > 5$



13) $|2 + p| \leq 2$

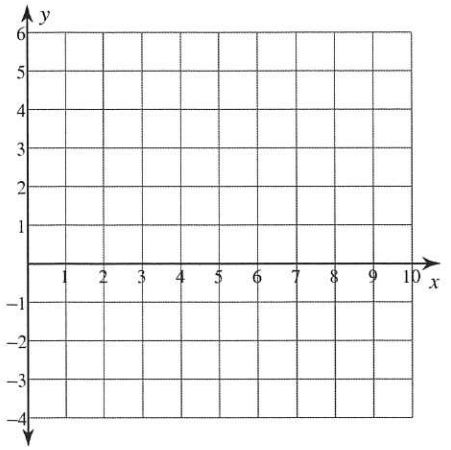


14) $\left|\frac{m}{9}\right| \geq 5$

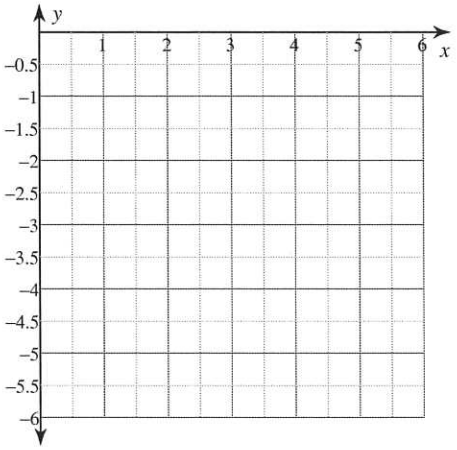


Sketch the graph of each function.

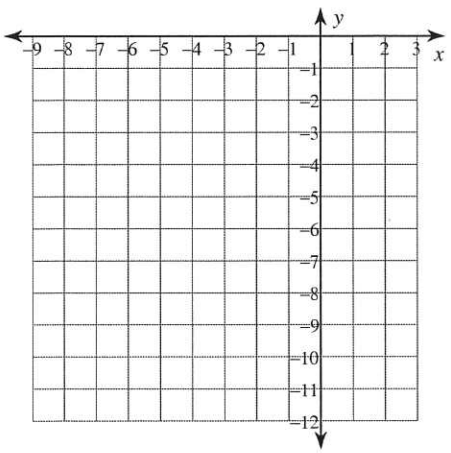
15) $y = 2x^2 - 8x + 5$



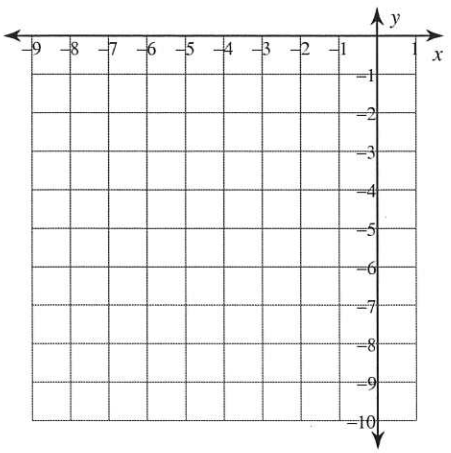
16) $y = -x^2 + 4x - 5$



17) $y = -2x^2 - 4x - 5$



18) $y = -2x^2 - 4x - 3$



Solve each equation by factoring.

19) $x^2 + 2x = 15$

20) $a^2 = -10 - 7a$

21) $v^2 - 6v = 7$

22) $x^2 = -49 + 14x$

Solve each equation by taking square roots.

23) $4x^2 - 10 = 310$

24) $5a^2 + 1 = 126$

25) $5k^2 - 10 = 235$

26) $4p^2 + 1 = 149$

Solve each equation with the quadratic formula.

27) $n^2 = 10n + 12$

28) $5m^2 - 19 = -9m$

29) $4x^2 = 15 + 4x$

30) $r^2 = 12 - 6r$

Evaluate each expression.

31) $2 \div (5 - 5 - 2)$

32) $-1 + (-13 - -5) \div -4$

33) $18 \div (4 - 4 + 3)$

34) $-6 \times 3 - 3 + 1$

35) $(-4 - (-5 + 4)) \div -1$

36) $-3 \times 3 + 4 - 5$

Evaluate each using the values given.

37) $zx - z \div 6$; use $x = 6$, and $z = 6$

38) $x^2 + y \div 3$; use $x = -4$, and $y = 3$

39) $6 \div 6 + mq$; use $m = -5$, and $q = 6$

40) $c - bc + a$; use $a = 1$, $b = -6$, and $c = 2$

41) $4 + n + m^2$; use $m = -2$, and $n = -2$

42) $q \times p^3 \div 4$; use $p = -4$, and $q = 3$

43) Ryan left the hospital driving toward the capital one hour before Jessica. Jessica drove in the opposite direction going 50 mph slower then Ryan for two hours after which time they were 300 mi. apart. Find Ryan's speed.

44) Cody traveled to the town hall and back. The trip there took three hours and the trip back took five hours. What was Cody's average speed on the trip there if he averaged 27 km/h on the return trip?

45) Carlos left the White House at the same time as Anjali. They traveled in opposite directions. Anjali traveled at a speed of 55 km/h. After three hours they were 273 km apart. How fast did Carlos travel?

46) Danielle left Kristin's house and drove toward her friend's house at an average speed of 65 mph. Jaidee left some time later driving in the opposite direction with an average speed of 65 mph. After Danielle had driven for three hours they were 390 mi. apart. How long did Jaidee drive?

47) A metal alloy weighing 5 oz. and containing 52% iron is melted and mixed with 1 oz. of pure iron. What percent of the resulting alloy is iron?

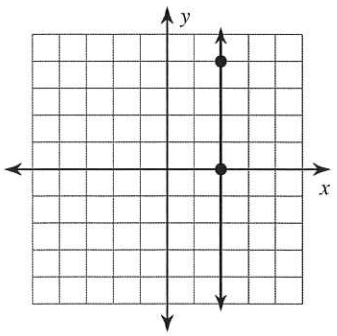
48) 4 kg of mixed nuts containing 30% peanuts were mixed with 10 kg of another kind of mixed nuts that contain 65% peanuts. What percent of the new mixture is peanuts?

49) For her birthday party Shanice mixed together 10 L of Brand A fruit punch and 9 L of Brand B. Brand A contains 8% fruit juice and Brand B contains 46% fruit juice. What percent of the mixture is fruit juice?

50) An alcohol solution was made by mixing 9 ml of a 10% alcohol solution and 1 ml of a 20% alcohol solution. What is the concentration of the mixture?

Find the slope of each line.

51)



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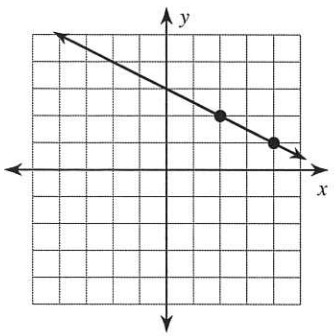

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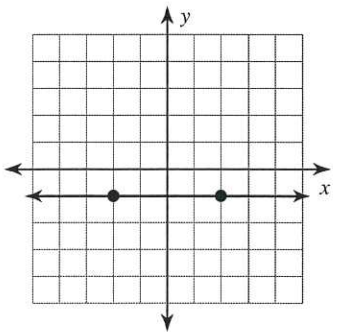

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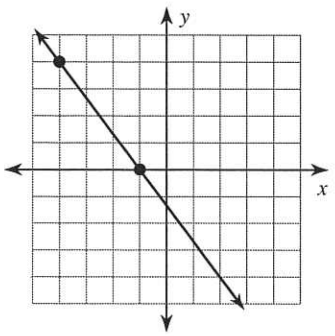


Find the slope of the line through each pair of points.

55) $(-6, -14), (-9, 3)$

56) $(6, -17), (4, -18)$

57) $(19, -5), (13, 9)$

58) $(-19, 15), (10, -7)$

Find the slope of each line.

59) $y = \frac{4}{3}x + 4$

60) $y = 3x - 5$

61) $y = \frac{8}{5}x + 5$

62) $y = x + 4$

Find the slope of a line parallel to each given line.

63) $-3y - 2x = 0$

64) $0 = -2 + x - \frac{2}{3}y$

65) $3x + 5y = -5$

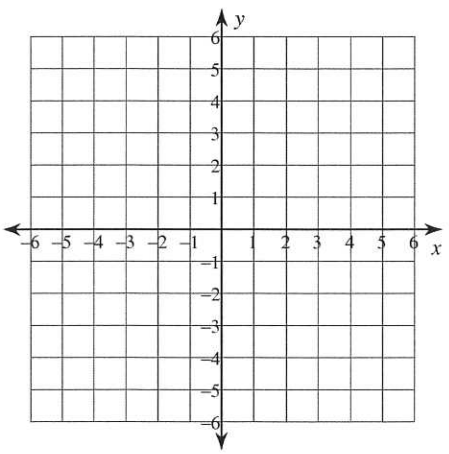
66) $4x + 4 = -y$

67) $-9 = -x + 3y$

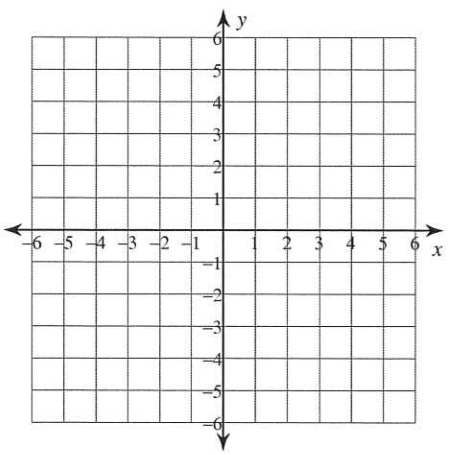
68) $-x = -2 - y$

Sketch the graph of each line.

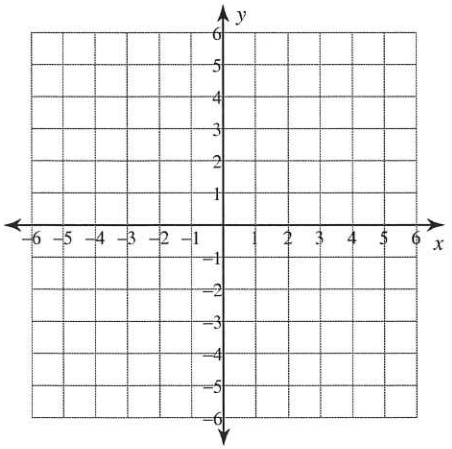
69) x-intercept = -1, y-intercept = 3



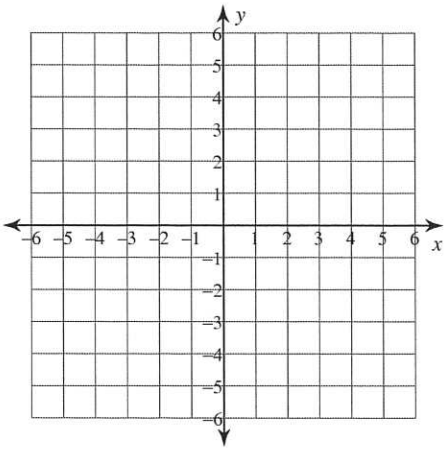
70) x-intercept = 1, y-intercept = 5



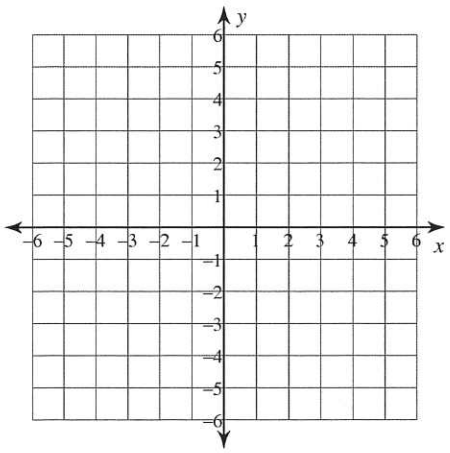
71) x-intercept = -3, y-intercept = -3



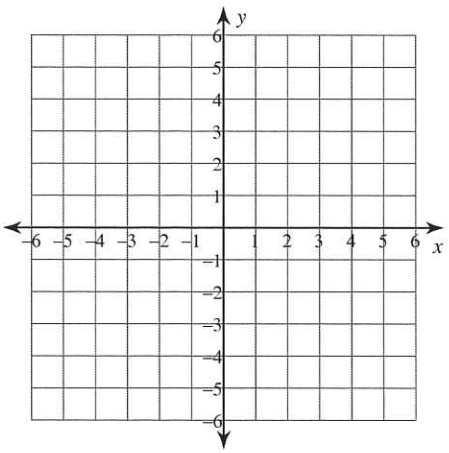
72) x-intercept = 4, y-intercept = -4



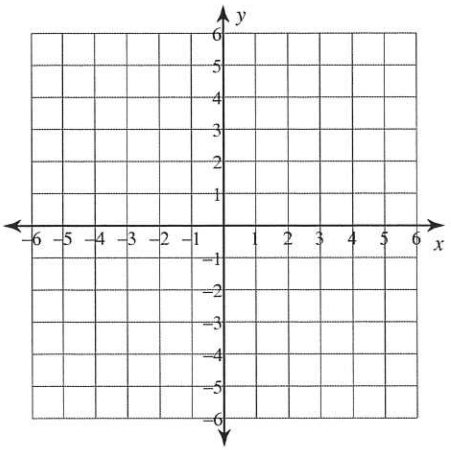
73) $5x - 4y = 20$



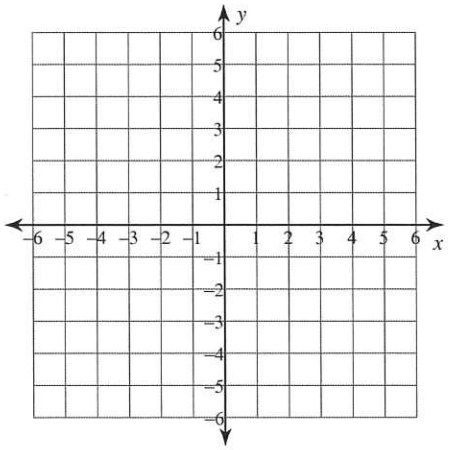
74) $3x - y = -1$



75) $x + 2y = 10$



76) $x + y = 2$



Find the value of x or y so that the line through the points has the given slope.

77) $(8, y)$ and $(1, 0)$; slope: $\frac{1}{7}$

78) $(-5, 7)$ and $(x, -8)$; slope: $-\frac{15}{2}$

79) $(5, -4)$ and $(1, y)$; slope: $\frac{5}{4}$

80) $(x, -1)$ and $(6, 8)$; slope: 1

81) When you reverse the digits in a certain two-digit number you decrease its value by 63. What is the number if the sum of its digits is 7?

82) When you reverse the digits in a certain two-digit number you decrease its value by 18. Find the number if the sum of its digits is 16.

Solve each system by graphing.

83) $y = 3x + 4$
$y = -4x - 3$

84) $y = \frac{7}{3}x - 3$
$y = \frac{7}{3}x + 2$

85) $y = -\frac{3}{4}x - 4$

$y = \frac{5}{4}x + 4$

86) $y = -\frac{1}{3}x - 3$

$y = \frac{5}{3}x + 3$

Solve each system by substitution.

87) $-3x + 5y = 11$
$x - 3y = -5$

88) $x - 4y = 9$
$4x - 6y = 16$

89) $x - 6y = 12$
$-3x + 8y = -16$

90) $x - y = 3$
$2x - 3y = 5$

Solve each system by elimination.

91) $-6x + 2y = -12$
$x - 8y = 25$

92) $-6x + 6y = 24$
$3x + 7y = -22$

93) $-7x + 7y = 14$
$-14x - 3y = -6$

94) $-8x - 2y = 8$
$16x + 8y = 0$