

**Solve each inequality and graph its solution.**

- 1)  $|5v + 10| < -25$       2)  $|3 - 2x| > 9$   
 3)  $|3 + 5x| - 7 < -4$       4)  $6 + |-x - 3| > 14$   
 5)  $9|3 + 5k| < 72$       6)  $|2 + b| + 3 > 7$

**Sketch the solution to each system of inequalities.**

- 7)  $y \leq 2x - 3$   
 $y \geq -\frac{1}{2}x + 2$   
 8)  $y > -x - 3$   
 $y > x - 1$   
 9)  $y < -x - 2$   
 $y < -6x + 3$   
 10)  $y \leq 2x - 3$   
 $y > \frac{1}{3}x + 2$

**Solve each system by elimination.**

- 11)  $-8x + 2y = 22$       12)  $6x - 2y = -26$   
 $9x - y = -26$        $-x - 10y = -6$   
 13)  $-16x - 10y = -4$       14)  $3x + 14y = 26$   
 $8x + 4y = -8$        $5x + 7y = -22$
- 15) The senior classes at High School A and High School B planned separate trips to the indoor climbing gym. The senior class at High School A rented and filled 9 vans and 5 buses with 288 students. High School B rented and filled 3 vans and 8 buses with 267 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?
- 16) The local amusement park is a popular field trip destination. This year the senior class at High School A and the senior class at High School B both planned trips there. The senior class at High School A rented and filled 11 vans and 14 buses with 709 students. High School B rented and filled 1 van and 11 buses with 473 students. Each van and each bus carried the same number of students. How many students can a van carry? How many students can a bus carry?

**Sketch the graph of each line.**

- 17)  $x$ -intercept =  $-4$ ,  $y$ -intercept =  $3$   
 18)  $x$ -intercept =  $5$ ,  $y$ -intercept =  $4$   
 19)  $2x + y = -5$       20)  $3x - y = 3$   
 21)  $y = \frac{1}{2}x - 1$       22)  $y = 2x - 5$

**Sketch the graph of each linear inequality.**

- 23)  $2x - y \leq -2$       24)  $x + 5y < 10$

**Write the slope-intercept form of the equation of each line given the slope and y-intercept.**

- 25) Slope =  $-\frac{1}{4}$ ,  $y$ -intercept =  $4$       26) Slope =  $6$ ,  $y$ -intercept =  $5$   
 27) Slope =  $\frac{1}{5}$ ,  $y$ -intercept =  $-3$       28) Slope =  $-\frac{5}{2}$ ,  $y$ -intercept =  $4$

**Write the slope-intercept form of the equation of each line.**

- 29)  $5x - 2y = 33$       30)  $x + 3y = -15$

**Write the slope-intercept form of the equation of the line through the given point with the given slope.**

- 31) through:  $(-3, 4)$ , slope =  $-2$       32) through:  $(2, -4)$ , slope =  $-\frac{9}{5}$   
 33) through:  $(4, 2)$ , slope =  $\frac{7}{4}$       34) through:  $(3, 2)$ , slope =  $\frac{2}{3}$

**Write the slope-intercept form of the equation of the line through the given points.**

- 35) through:  $(-5, -3)$  and  $(5, 1)$       36) through:  $(2, -3)$  and  $(3, 3)$   
 37) through:  $(0, -2)$  and  $(-1, 5)$       38) through:  $(5, 3)$  and  $(1, 5)$

Write the slope-intercept form of the equation of the line described.

39) through: (3, 2), parallel to  $y = \frac{1}{2}x + 1$

40) through: (3, -2), parallel to  $y = -\frac{7}{3}x$

41) through: (4, 0), perp. to  $y = -\frac{4}{5}x + 1$

42) through: (-5, 0), perp. to  $y = -5x - 5$

Solve each inequality and graph its solution.

43)  $p - 7 + 3 - 4 \leq -p + p$

44)  $2 + 3n - 5n > 2n - 5n$

45)  $-6 + 8n > -7(2 + 5n) + 8$

46)  $-2 - 2(v + 6) < -18 - v$

Simplify.

47)  $\sqrt{27}$

48)  $\sqrt{98}$

49)  $\sqrt{18}$

50)  $\sqrt{20k^3}$

51)  $\sqrt{72x^4}$

52)  $\sqrt{150x^4y^4}$

53)  $\sqrt{200x^3y}$

54)  $\sqrt{150n^3}$

55)  $\sqrt{45xy^3}$

56)  $2\sqrt{12} + 3\sqrt{27}$

57)  $-3\sqrt{18} - 2\sqrt{2}$

58)  $-2\sqrt{3} - 2\sqrt{12}$

59)  $2\sqrt{8} + 2\sqrt{2}$

Solve each inequality.

60)  $24 \leq 8(-8 + n)$

61)  $6(b + 3) \geq 5(b + 8)$

62)  $8p - 5 > 9(p + 1)$

63)  $8(x + 5) < 7(x + 3)$

Factor each completely.

64)  $x^2 + 2x - 35$

65)  $n^2 + 7n + 10$

66)  $6b^2 - 18b - 168$

67)  $b^2 + 4b - 12$

68)  $a^2 + 6a + 9$

69)  $a^2 - 13a + 30$

Solve each equation by factoring.

70)  $a^2 + 12a + 32 = 0$

71)  $k^2 + 16k + 64 = 0$

72)  $n^2 - 6n + 5 = 0$

73)  $n^2 + 5n - 24 = 0$

74)  $n^2 - 9n + 20 = 0$

75)  $x^2 - 6x = 0$

Simplify each

76)  $\frac{x - 8}{x^2 - 13x + 40}$

77)  $\frac{m - 5}{4m - 20}$

78)  $\frac{x - 6}{10x - 60}$

79)  $\frac{m + 9}{m^2 + 18m + 81}$

80)  $\frac{49v^3 - 21v^2}{-28v^2}$

81)  $\frac{50k^2 - 25k}{15k}$

Simplify. Your answer should contain only positive exponents.

82)  $(2k^7)^8$

83)  $(2k^{10})^4$

84)  $(3x^3)^3$

85)  $(3n^3)^6$

Simplify each expression.

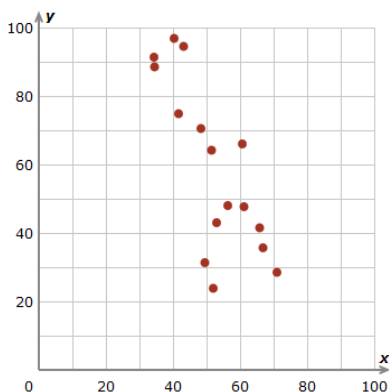
86)  $7b(3b^2 - 2b + 7)$

87)  $3x^3(4x^3 - 5x^2 - 6x)$

88)  $-8x^3(10x^2 + 3x)$

89)  $9n(n^2 + 2)$

90) Draw a line of best fit for each graph below



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91) Draw a line of best fit for each graph below

