

FBMS Summer Geometry Packet

Due: August 22, 2022



Solving Equations in One Variable

Solve

1. $\frac{3y-2(y-1)}{6} = -1$

2. $3(x-2) - x = 2(2x-1)$

3. $3(180-y) = 2(90-y)$

4. $6x - 3(6-5x) + 3x = 10 - 4(2-x)$

5. $\frac{1}{2}(6+4x) - \frac{1}{4}(8x-12) = \frac{1}{2}(2x-4)$

6. $5x - [7 - (2x-1)] = 3(x-5) + 4(x+3)$

Solve each system of equations by the substitution method.

7. $y = 2x + 5$

$3x - y = 4$

8. $8x + 3y = 26$

$2x = y - 4$

9. $x - 8 = 3 + y$

$2x - 5y = 8$

10. $x - 7y = 13$

$3x - 5y = 23$

11. $3x + 2y = 71$

$y = 4 + 2x$

12. $3x + y = 19$

$2x - 5y = -10$

Solve each system of equations using the elimination method.

13. $3x + 4y = 9$

$-3x - 2y = -3$

14. $4x - 6y = -26$

$-2x + 3y = 13$

15. $5x + 3y = 30$

$3x + 3y = 18$

16. $2x - 8y = 24$

$3x + 5y = 2$

17. $3x + y = -3$

$x + 4y = 10$

18. $5x - 9y = 47$

$6x + 2y = 18$

The Coordinate Plane

Name the coordinates of each point.

19. M

24. T

20. N

25. U

21. K

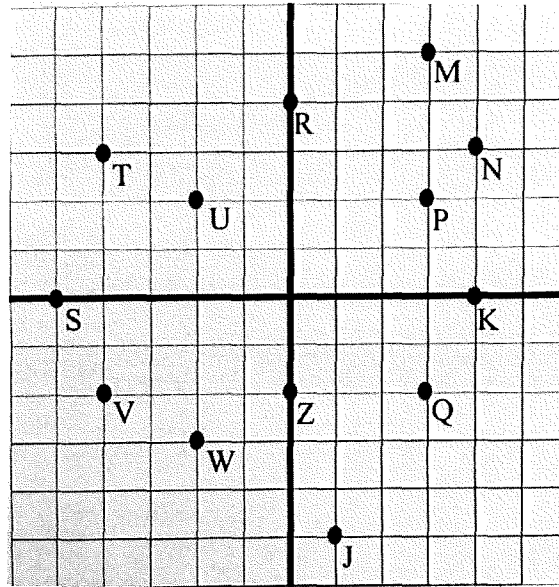
26. V

22. R

27. W

23. S

28. Q



29. Name all the points shown that lie on the x-axis.

30. Name all the points shown on the y-axis.

31. What is the x-coordinate of every point that lies on a vertical line through P?

32. Which of the following points lie on a horizontal line through W?

$(-2, 1)$

$(2, 3)$

$(1, -3)$

$(-2, 0)$

$(0, -3)$

$(2, 0)$

Name all the points shown that lie in the quadrant indicated. (A point on an axis is not in any quadrant)

33. Quadrant I

34. Quadrant II

35. Quadrant III

36. Quadrant IV

Plot each point on the graph above.

37. A $(2, 1)$

38. B $(5, 0)$

39. C $(0, 3)$

40. D $(-3, 1)$

41. E $(-2, -1)$

42. F $(1, -2)$

43. G $(4, -2)$

44. H $(-4, -3)$

Simplify the following fractions

45. $\frac{14}{70}$

46. $\frac{75}{15}$

47. $\frac{18a}{36}$

48. $\frac{3x}{x}$

49. $\frac{x}{3x}$

50. $\frac{5bc}{10b^2}$

51. $\frac{-8y^3}{2y}$

52. $\frac{-18r^3t}{12rt}$

53. $\frac{3ab^2}{6bc}$

54. $\frac{6a+12}{6}$

55. $\frac{9x-6y}{3}$

56. $\frac{33ab-22b}{11b}$

Solve each equation by factoring

57. $x^2 + 5x - 6 = 0$

58. $x^2 - 7x - 18 = 0$

59. $x^2 = 20x - 36$

60. $x^2 + 8x = 20$

61. $4x^2 + 15 = 17x$

62. $3x^2 - 13x - 10 = 0$

63. $6x^2 + 11x - 10 = 0$

64. $8x^2 + 10x - 25 = 0$

Solve the following proportions

$$65. \frac{7}{2} = \frac{y}{3}$$

$$66. \frac{7}{3} = \frac{21}{x}$$

$$67. \frac{5}{25} = \frac{10}{x}$$

$$68. \frac{10}{6x+7} = \frac{6}{2x+9}$$

$$69. \frac{4}{x-3} = \frac{6}{x+3}$$

$$70. \frac{3x-5}{2} = \frac{x-15}{4}$$

$$71. \frac{2-4x}{-6} = \frac{6x-8}{10}$$

$$72. \frac{x+2}{5} = \frac{4}{x+1}$$

$$73. \frac{2}{x-3} = \frac{x-2}{6}$$

The Slope of a Line

Given two points, find the slope

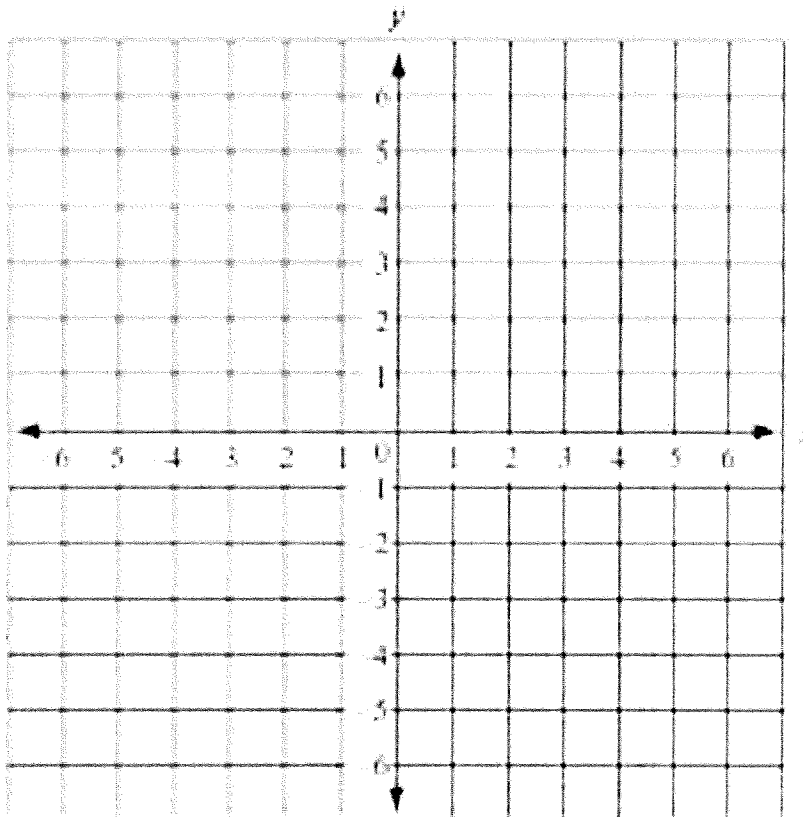
$$74. (3, -4) \text{ and } (3, -2)$$

$$75. \left(\frac{3}{2}, -3\right) \text{ and } \left(\frac{1}{2}, -7\right)$$

Graphs of Linear Equations in Two Variables

Graph the following

$$76. 2x + 5y = 15$$



Finding the Equation of a Line

Write the equation of the line in both *standard form* $Ax + By + C = 0$ and *point-slope form* $y - y_1 = m(x - x_1)$ that has the given conditions.

77. Contains the point $(-4, -2)$ and has slope $= \frac{1}{2}$

78. Contains the points $(3, -2)$ and $(2, -3)$

79. Perpendicular to the line $4x - y = -3$ and passes through the point $(-8, 3)$

80. Contains the points $(-3, 0)$ and $(0, -1)$

Algebraic Solving of Systems of Linear Equations in Two Variables

Solve the system of equations.

81. $8x - 3y = 3$

82. $6x = 4y + 5$

$3x - 2y + 5 = 0$

$6y = 9x - 5$

Products and Quotients of Rational Expressions

Factor Completely

83. $100a^2 - 36b^2$

84. $16x^2 + 40xy + 25y^2$

85. $6x^2 - 7x - 3$

86. $x^4 - 2x^2 + 1$

87. $16x^3 - 64x^2$

88. $4k^2 + 20k + 25$

89. $25j^2 - 80j + 64$

90. $5x^2 + 13x + 6$

91. $x^2 - 10xy + 24y^2$

Pythagorean Theorem $a^2 + b^2 = c^2$

Find the missing side length.

92. $a = 3, c = 5$

93. $a = 4, b = 6$

94. $a = 42, b = 40$

95. $a = 60, c = 68$

Find the value of x .

96. $a = 2x, b = 2x + 4, c = 4x - 4$