College Park Geometry Summer Packet - **Name:**_____

5. Solve for b.

$$-33 = 6b - 15$$

2. Solve for a.

$$31 = \frac{3}{4}a + 1$$

3. Solve for x. Express your answer as a proper or improper fraction in simplest terms.

$$\frac{1}{2} = \frac{3}{4} - \frac{11}{12}x$$

4. Solve for x:

$$-x + 3 = x + 1$$

Solve. $3(z + 6) = 27$

6. Solve for x.

$$-2(-5x + 5) + 3x - 2 = -38$$

7. Solve for x:

$$10 - 2(-4x - 3) = 10$$

8. Solve for x in simplest form.

$$4 = \frac{1}{7}(9x + 21)$$

9. Solve for x.

$$\frac{x-1}{14} - \frac{2x+6}{7} = -2$$

10. Solve for x and write your answer in simplest form.

$$-4 - \frac{9}{10}(-10x - 3) = \frac{1}{2}$$

11. Solve for x.

$$\frac{9}{x} = -\frac{3}{10}$$

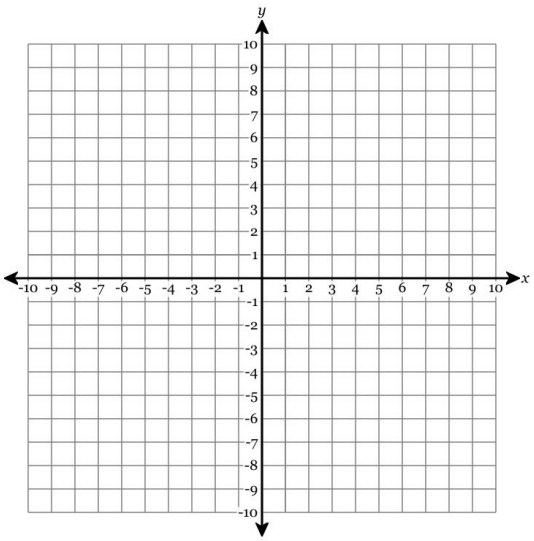
12. Solve for x and simplify the answer fully.

$$\frac{9}{x+4} = \frac{2}{x+8}$$

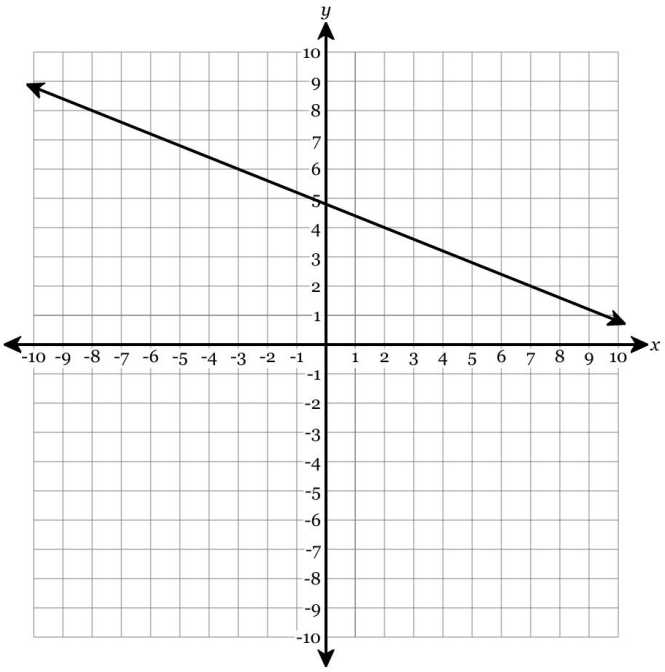
13. Find the slope of the line represented by the equation below.

$$9 = 3y - 3x$$

14. Graph the line with the equation $y = x + 4$.



15. Draw a line representing the "rise" and a line representing the "run" of the line. State the slope of the line in simplest form.

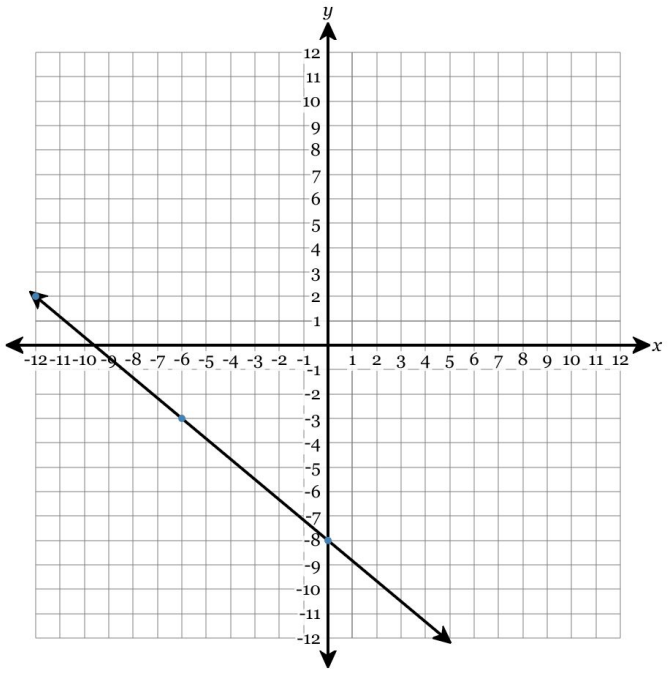


16. What is the slope of the line that passes through the points $(-3, -9)$ and $(-5, -5)$? Write your answer in *simplest form*.

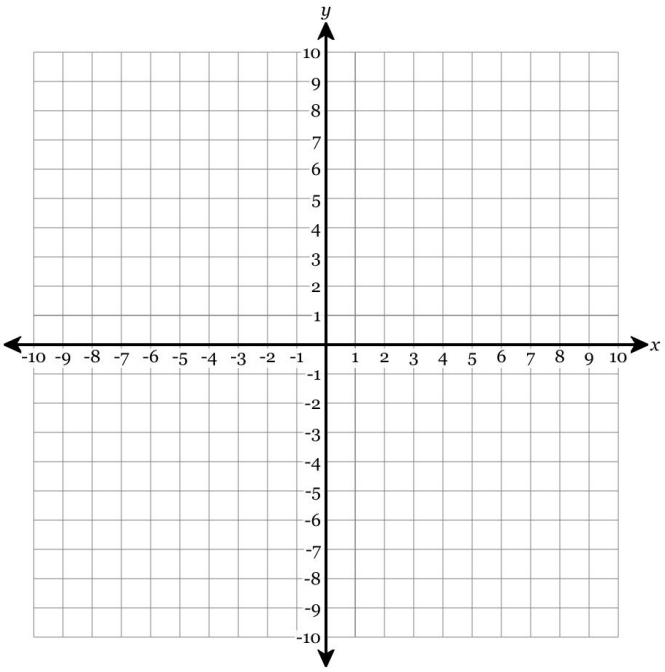
17. Put the following equation of a line into slope-intercept form, simplifying all fractions.

$$4x - 12y = 72$$

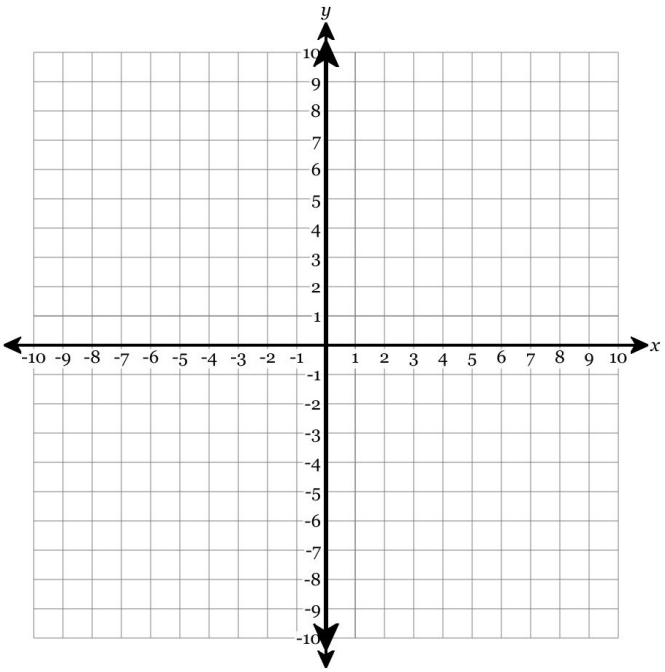
18. Write the equation of the line in fully simplified slope-intercept form.



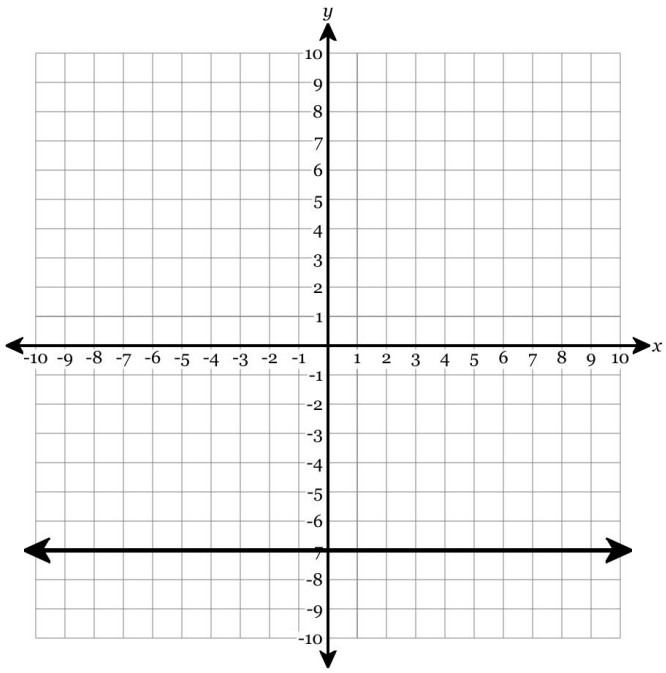
19. Graph the line $x = 1$ on the axes shown below.



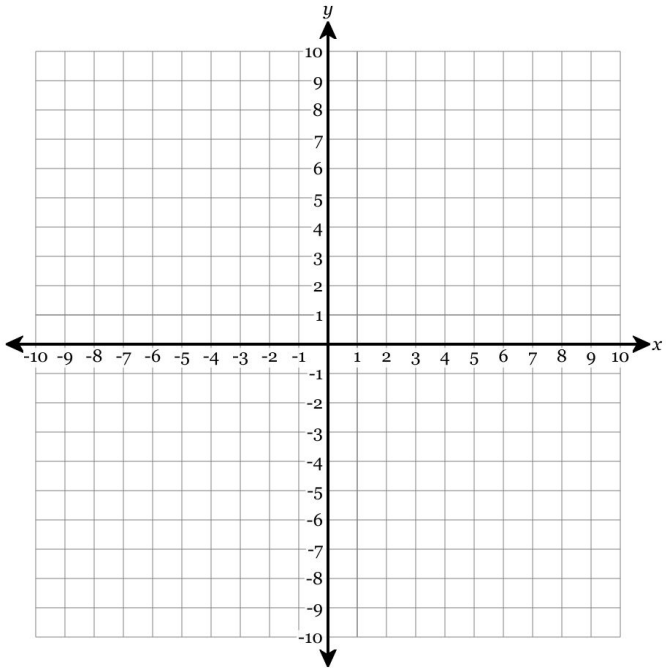
20. Write the equation of the line graphed below in simplest form.



21. Write the equation of the line graphed below in simplest form.



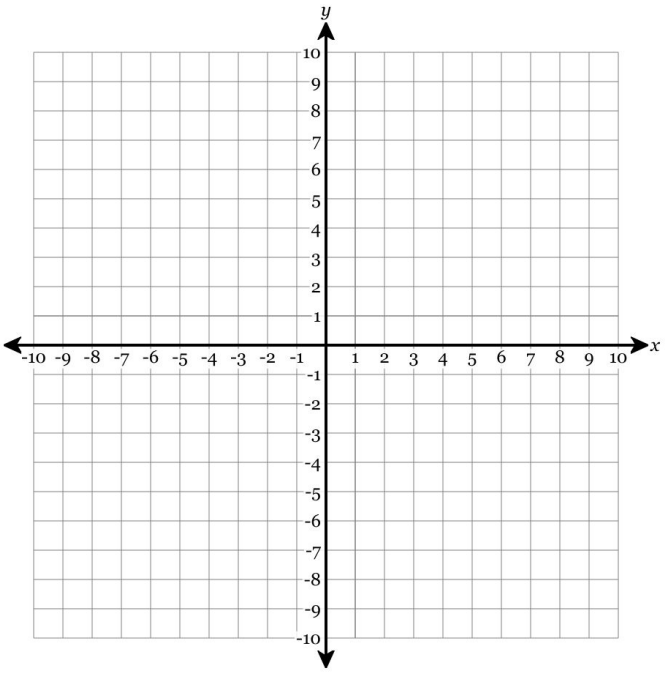
22. Graph the line $y = -4$ on the axes shown below.



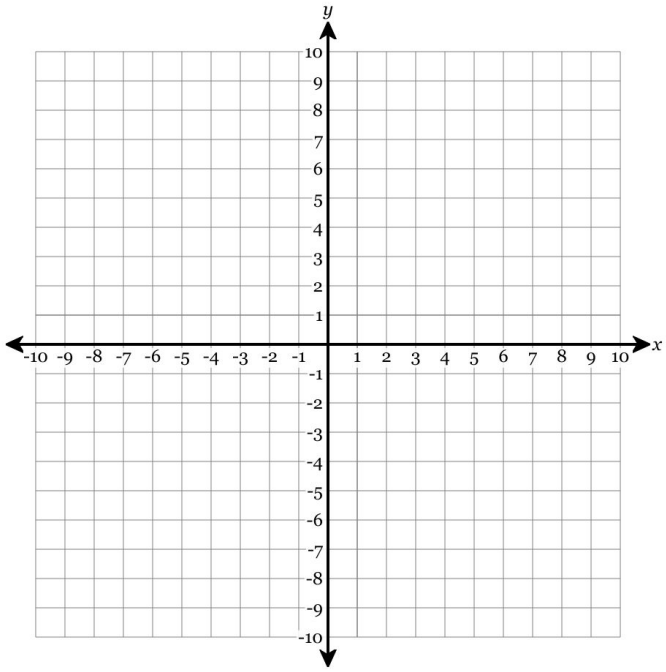
23. What is the equation of the line that passes through the point $(1, 2)$ and has a slope of -6?

24. Use point-slope form to write the equation of a line that passes through the point $(-5, 8)$ with slope 5.

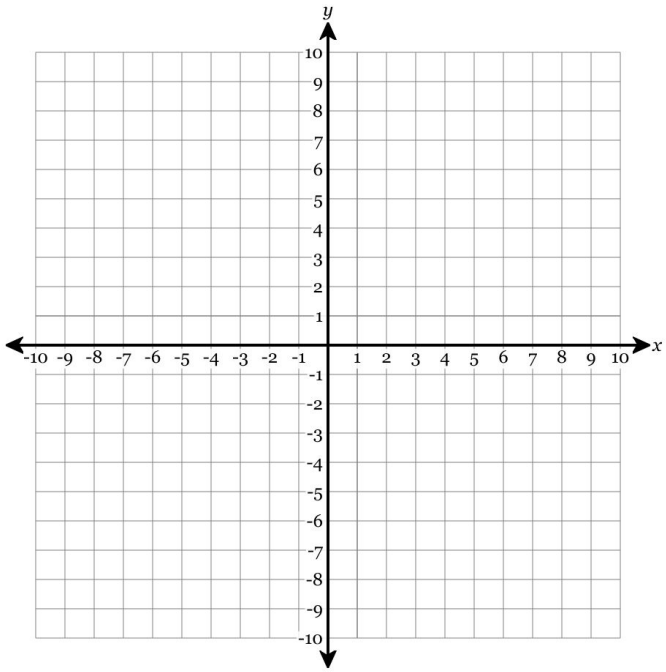
25. Graph the line that passes through the points $(9, 1)$ and $(3, -5)$ and determine the equation of the line.



26. Graph the line that passes through the points $(-1, -6)$ and $(-5, -6)$ and determine the equation of the line.



27. Graph the line that passes through the points $(5, -4)$ and $(5, 3)$ and determine the equation of the line.



28. What is an equation of the line that passes through the points $(3, 7)$ and $(-6, 1)$?

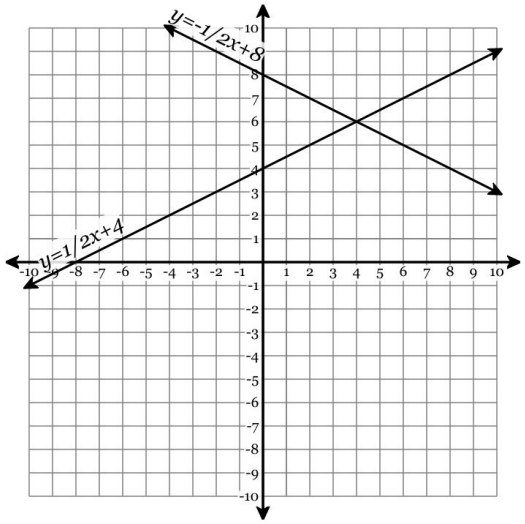
29. What is an equation of the line that passes through the points $(8, -8)$ and $(3, -8)$?

30. What is an equation of the line that passes through the points $(5, -4)$ and $(5, 6)$?

31. Solve the system of equations graphed on the coordinate axes below.

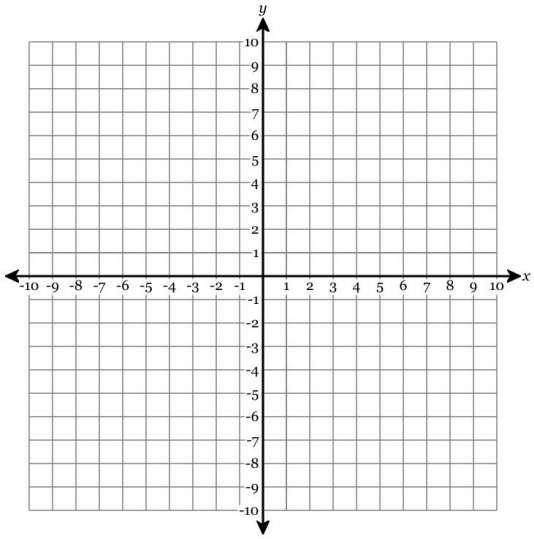
$$y = -\frac{1}{2}x + 8$$

$$y = \frac{1}{2}x + 4$$



32. Solve the following system of equations graphically on the set of axes below and state the coordinates of the solution.

$$y = x - 5 \qquad 2x + y = -2$$



33. Find the solution of the system of equations.

$$3x - 4y = 9$$
$$-5x + 4y = -23$$

34. Find the solution of the system of equations.

$$3x - y = 19$$
$$3x - 4y = -5$$

35. Find the solution of the system of equations.

$$15x - 4y = -50$$
$$3x - 2y = -16$$

36. Solve the system by substitution.

$$y = -2x$$
$$y = -6x + 36$$

37. Solve the system by substitution.

$$y = -x$$
$$-2x + 5y = -28$$

38. Solve the system by substitution.

$$-3y + 10 = x$$
$$10x + 7y = -38$$

39. Jeremiah went into a movie theater and bought 7 drinks and 6 candies, costing a total of $50.50. Zoe went into the same movie theater and bought 2 drinks and 3 candies, costing a total of $19.25. Determine the price of each drink and the price of each candy.

40. Perform the operation.

$$(-5x + 2) - (-4x^2 - 6)$$

41. Express as a trinomial: $(3x + 6)(x + 1)$

42. Express $(x - 2)^2$ as a trinomial in standard form.

43. Expand the expression to a polynomial in standard form:

$$(x - 2)(x^2 - 5x + 3)$$

44. Factor $x^2 + x - 2$

45. Factor the trinomial: $3x^2 + 14x + 8$

46. Factor completely: $5x^2 - 4x - 9$

47. Factor completely: $3x^2 - 17x + 10$

48. Write the quadratic equation in standard form:

$$x^2 - 20 = 5x$$

49. Write the quadratic equation in standard form:

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

50. Solve for all values of x by factoring.

$$x^2 - x - 17 = -x - 1$$

51. Solve the quadratic by factoring.

$$x^2 + 13 = -10x - 8$$

52. Solve the quadratic by factoring.

$$2x^2 - 11x + 6 = -4x$$

53. Solve for all values of x.

$$\frac{x+3}{x+2} = \frac{-2}{x}$$

54. The width of a rectangle is the length minus 1 units. The area of the rectangle is 42 square units. What is the length, in units, of the rectangle?

55. 4 times a number is 32 less than the square of that number. Find the negative solution.

56. Express in simplest radical form: $\sqrt{100}$

57. Express in simplest radical form.

$$\frac{\sqrt{8}}{8}$$

58. Express in simplest radical form.

$$5\sqrt{3} - \sqrt{27}$$

59. Express in simplest form with a rational denominator.

$$\frac{3}{\sqrt{54}}$$

60. Assuming x and y are both positive, write the following expression in simplest radical form.

$$y^3\sqrt{4x^6y^3}$$

61. Solve the following quadratic equation for all values of x in simplest form.

$$17 - 2x^2 = 15$$

62. Solve the following quadratic equation for all values of x in simplest form.

$$16(6-3x)^2-1=35$$

63. Solve the equation for all values of x by *completing the square*. Express your answer in simplest form.

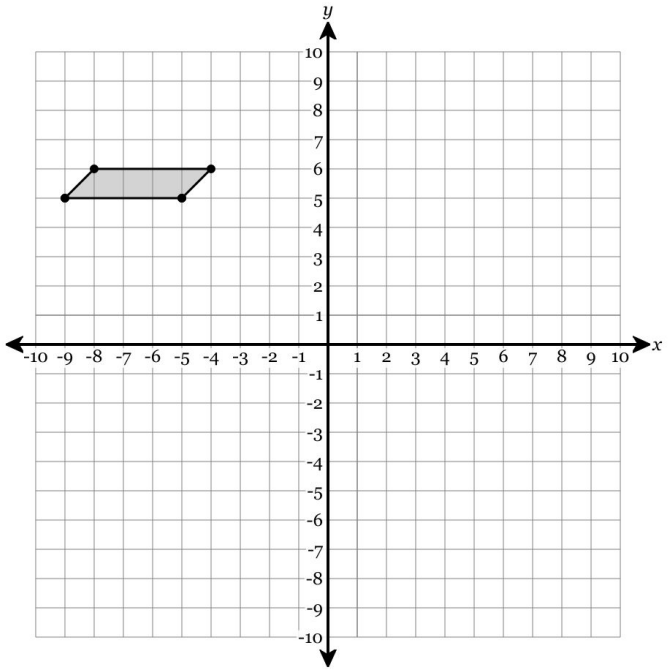
$$x^2+3=4x$$

64. Use the quadratic formula to solve. Express your answer in simplest form.

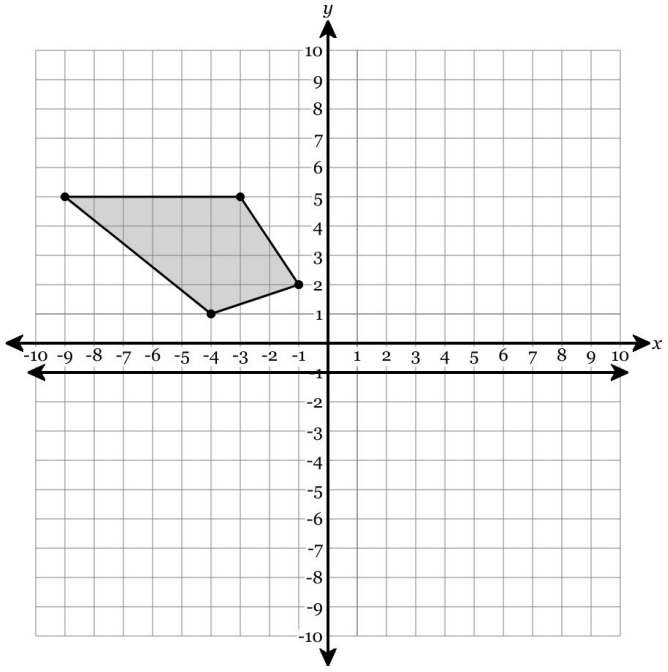
$$6q^2-10q+25=5q^2$$

65. What is the image point of $(8,-2)$ after a translation right 5 units and up 2 units?

66. Translate the figure 3 units right and 3 units down.

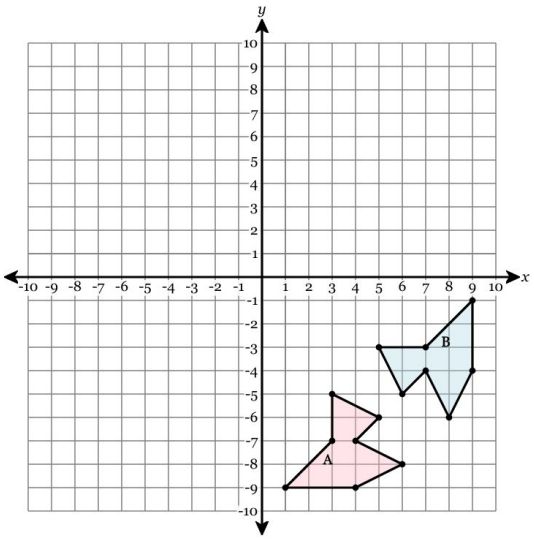


67. Reflect the figure over the line $y=-1$.



68. Point N is located at $(-4, -3)$ on the coordinate plane. Point N is reflected over the x-axis to create point N'. Point N' is then reflected over the y-axis to create point N''. What ordered pair describes the location of N''?

69. Which transformation would take Shape A to Shape B?



A. A reflection over the line $y = -x$

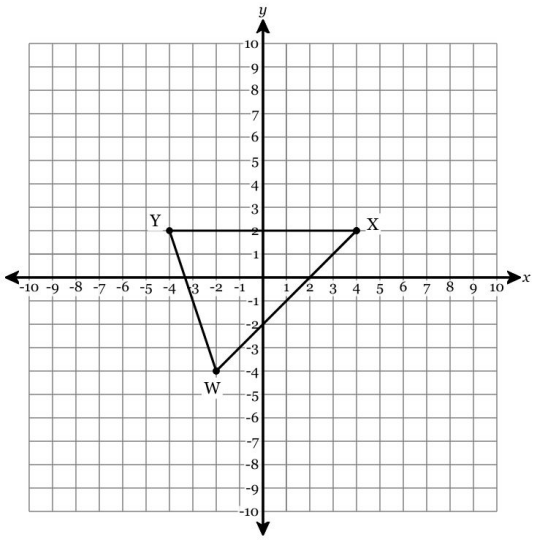
B. A reflection over the line $y = x$

C. A clockwise rotation of $270°$ about the origin

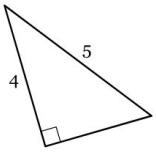
D. A clockwise rotation of $180°$ about the origin

70. What is the image of $(-4, 12)$ after a dilation by a scale factor of $\frac{1}{4}$ centered at the origin?

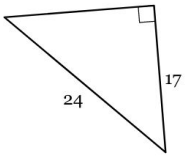
71. The figure below is dilated by a factor of $\frac{1}{2}$ centered at the origin. Plot the resulting image.



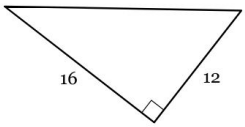
72. Find the length of the third side. If necessary, round to the nearest tenth.



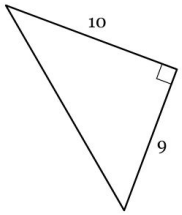
73. Find the length of the third side. If necessary, round to the nearest tenth.



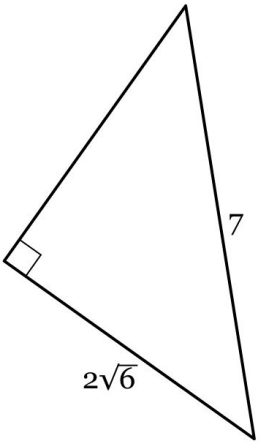
74. Find the length of the third side. If necessary, round to the nearest tenth.



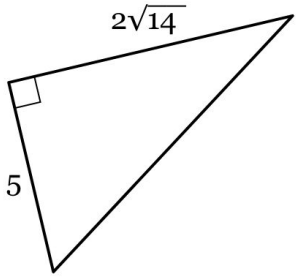
75. Find the length of the third side. If necessary, round to the nearest tenth.



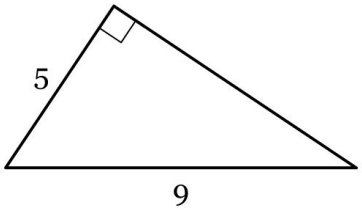
76. Find the length of the third side. If necessary, write in **simplest radical form**.



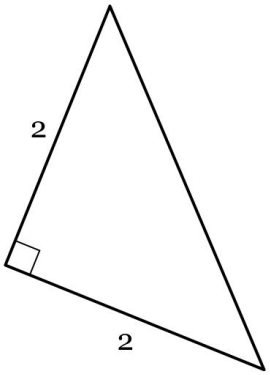
77. Find the length of the third side. If necessary, write in **simplest radical form**.



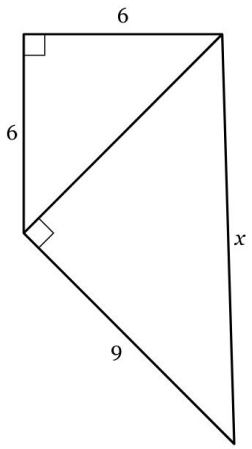
78. Find the length of the third side. If necessary, write in **simplest radical form**.



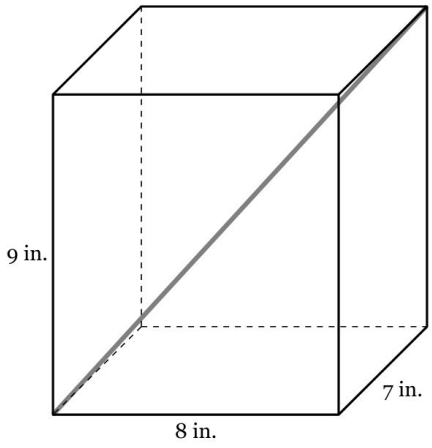
79. Find the length of the third side. If necessary, write in **simplest radical form**.



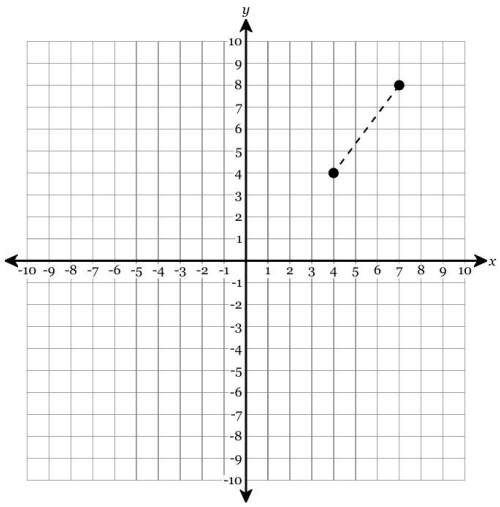
80. Solve for x *to the nearest tenth*.



81. A straw is placed inside a rectangular box that is 8 inches by 7 inches by 9 inches, as shown. If the straw fits *exactly* into the box diagonally from the bottom left corner to the top right back corner, how long is the straw? Leave your answer in simplest radical form.

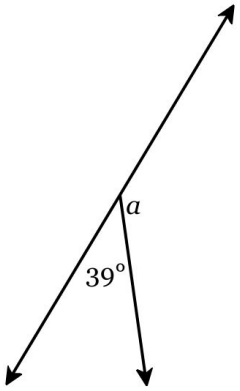


82. Graph a right triangle with the points $(7, 8)$ and $(4, 4)$ forming the hypotenuse. Using the sides, find the distance between these points, *to the nearest tenth* (if necessary).

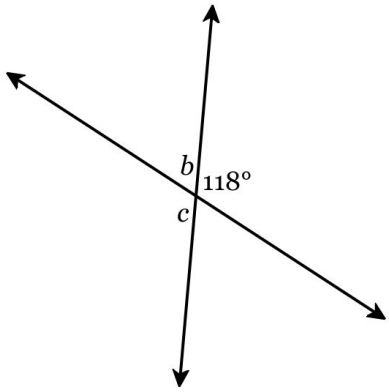


Leg 1: _____ Leg 2: _____ Distance: _____

83. Find the measure of the missing angle.

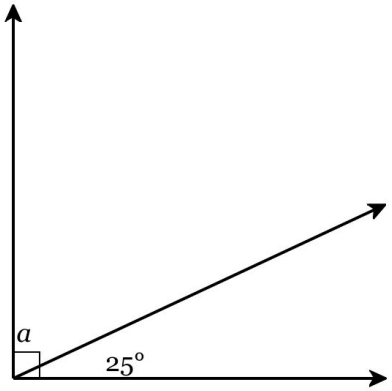


84. Find the measure of the missing angles.



$b =$ _____° $c =$ _____°

85. Find the measure of the missing angle.



86. Find the slope of a line perpendicular to the line whose equation is $10x - 6y = 108$. Fully simplify your answer.

87. Find the slope of a line parallel to the line whose equation is $x + 5y = -15$. Fully simplify your answer.

88. What is an equation of the line that passes through the point $(-5, -8)$ and is perpendicular to the line $5x + 6y = 12$?

89. What is an equation of the line that passes through the point $(1, 6)$ and is parallel to the line $2x - y = 4$?