Entering Algebra 2 (Post Geometry) Summer Homework



Name _____

Please read all instructions before beginning this packet.

This packet is designed to serve as a checkpoint for the material covered in your Delta Math online assignment. You must complete the Delta Math assignment first before starting this packet.

Show all work directly in this packet.
If you need additional space, use lined paper and clearly label each problem.
Submit the completed printed packet when you return to school in August.

To maintain your academic progress, the math department at CSN expects you to spend approximately one hour per week working on these problem sets. Most problems can be completed without a calculator, but use when necessary.

Your grade will be based on:

- Completion
- Accuracy
- A beginning-of-year assessment given during the first week of school

Please give your best effort. This work helps reflect your individual strengths and areas for growth, and it also allows the department to analyze overall student performance. Teachers will use this information to adjust instruction and better support your learning.

Please reach out to your teacher or the department chair with any questions or concerns.

1. Simplify the expression below using order of operations.

$$\frac{5^3}{(1^3+4)} - 4$$

2. Simplify the expression below using order of operations.

$$9^2 + (5 \times 10) - 4$$

3. Simplify the expression below using order of operations.

$$8 \times 4 \div 4 + 1$$

4. Simplify the expression below using order of operations.

$$(6 + 10) - 1 \times 2$$

5. Solve for c.

$$61 = -9c + 7$$

6. Solve for y.

$$9 = 5 - \frac{y}{3}$$

7. Solve for c.

$$41 = 13 + \frac{2}{7}c$$

8. Solve for y. Express your answer as a proper or improper fraction in simplest terms.

$$-\frac{3}{4} = -\frac{7}{8} - \frac{1}{3}y$$

9. Solve for x:

$$-7x - 5 = -5x - 13$$

10. Solve for x:

$$-11x + 2 = -10x - 4$$

11. Solve. $2(4z + 1) = 42$

12. Solve. $3(2x - 2) = -36$

13. Solve for x.

$$-2(-x - 4) - 3x - 5 = -5$$

14. Solve for x.

$$-2(x - 1) - 4x + 2 = 34$$

15. Solve for x:

$$5(-3x + 5) = -9(x - 3) - 8x$$

16. Solve for x in simplest form.

$$11 = \frac{4}{7}(10x + 21)$$

17. Solve for x.

$$\frac{2x + 9}{8} - \frac{7}{6} = \frac{-1}{24}$$

18. Solve for x.

$$\frac{x}{18} = -\frac{2}{9}$$

19. Solve for x.

$$\frac{15}{x} = -\frac{3}{4}$$

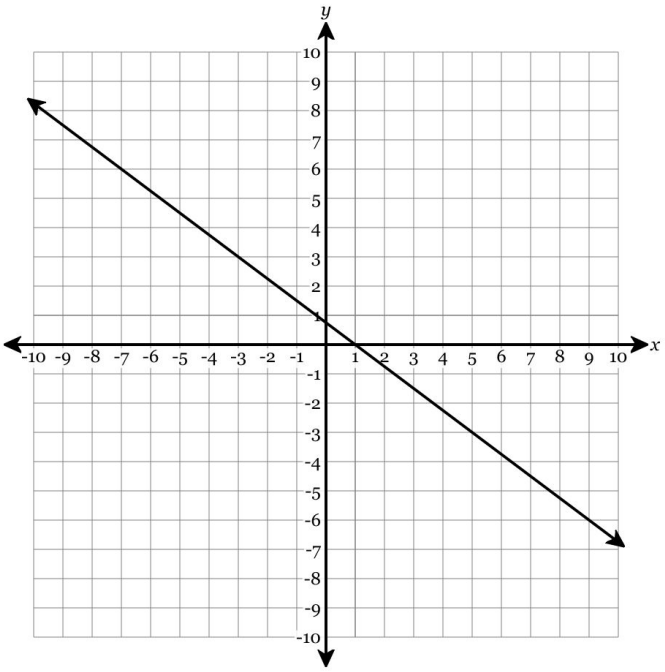
20. Solve for x and simplify the answer fully.

$$\frac{x - 3}{7} = \frac{x - 7}{3}$$

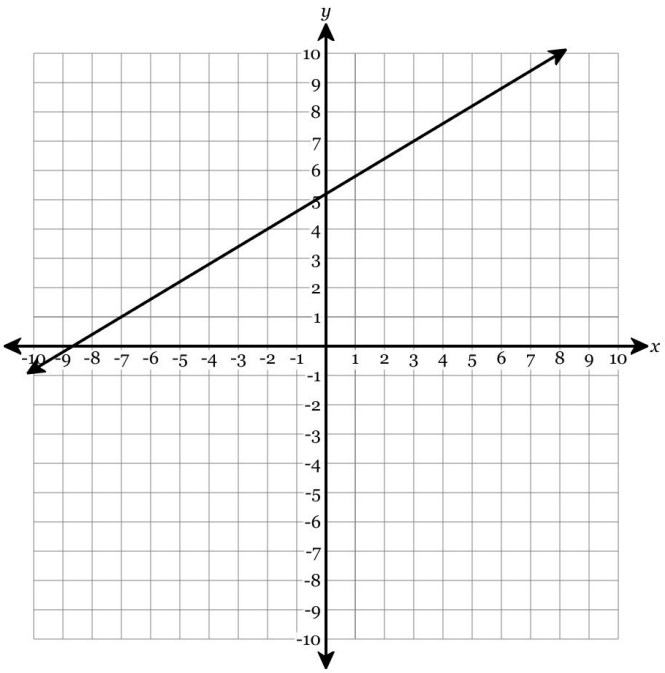
21. Solve for x and simplify the answer fully.

$$\frac{8}{x - 6} = \frac{5}{x + 3}$$

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



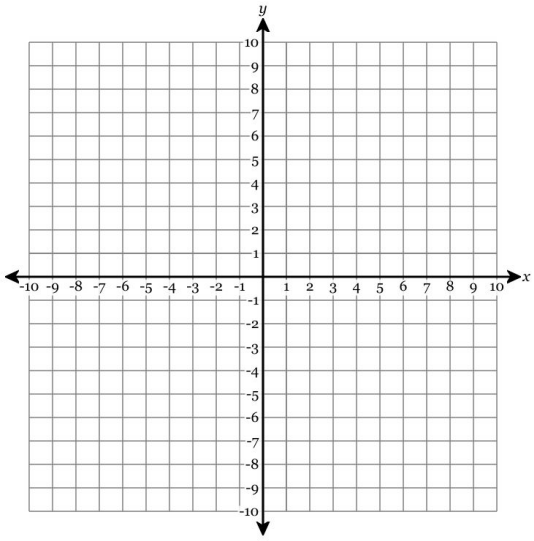
23. Draw a line representing the "rise" and a line representing the "run" of the line. State the slope of the line in simplest form.



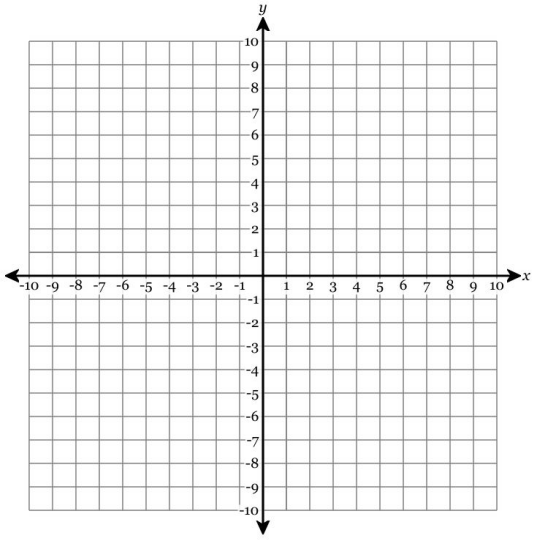
24. What is the slope of the line that passes through the points $(1, 9)$ and $(-24, 24)$? Write your answer in *simplest form*.

25. What is the slope of the line that passes through the points $(-7, 9)$ and $(-25, 24)$? Write your answer in *simplest form*.

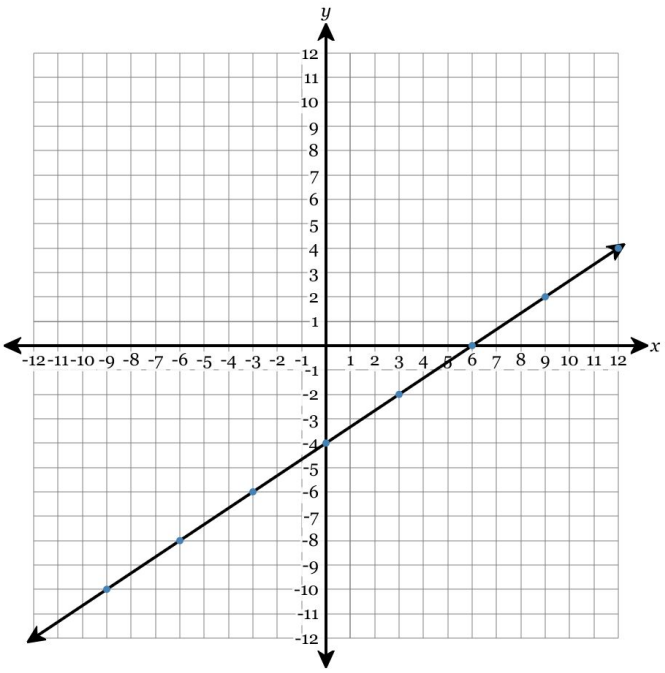
26. Graph the line with the equation $y = -\frac{2}{5}x - 2$.



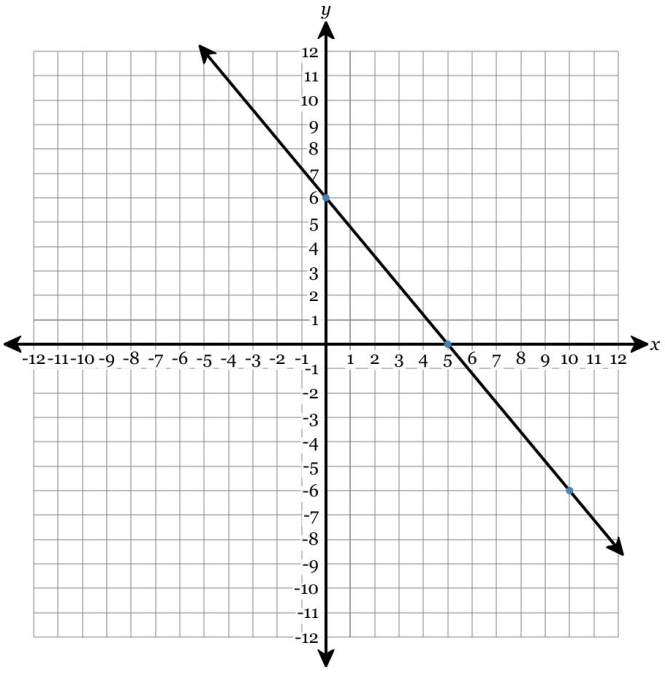
27. Graph the line with the equation $y = -x - 6$.



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



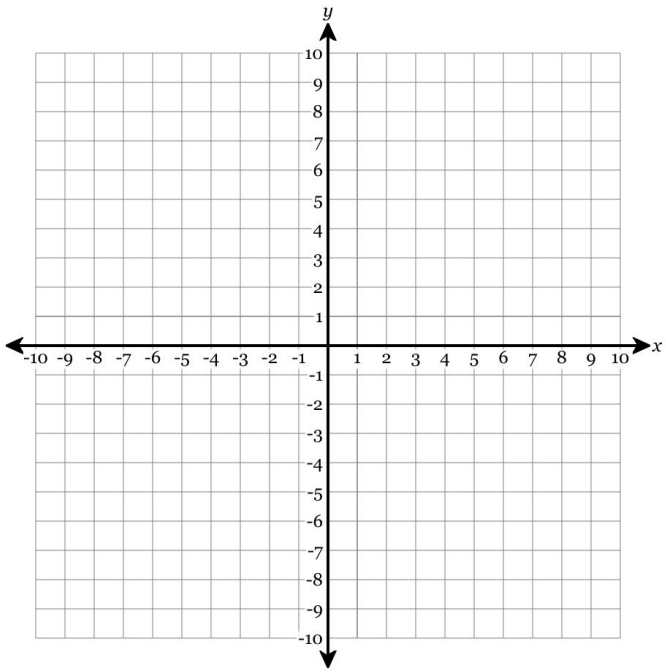
29. Write the equation of the line in fully simplified slope-intercept form.



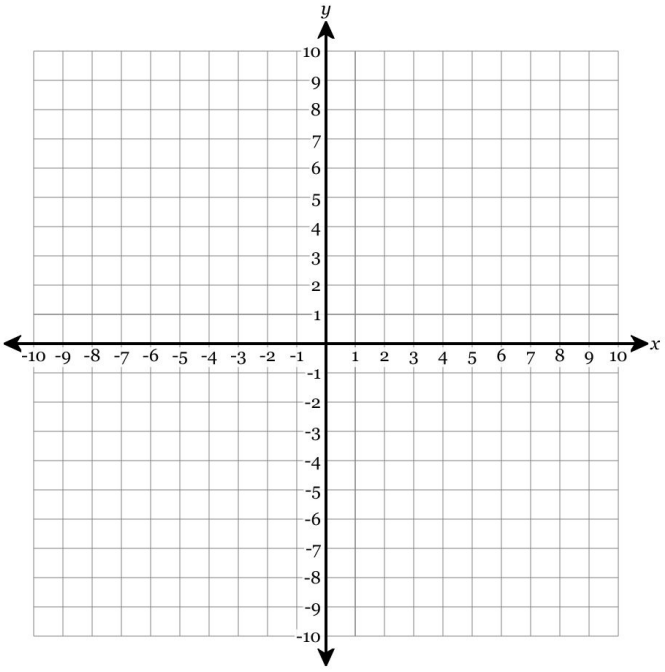
30. What is the equation of the line that passes through the point $(8, -3)$ and has a slope of 0?

31. What is the equation of the line that passes through the point $(1, -5)$ and has a slope of -2?

32. Graph the line that passes through the points $(-9, 5)$ and $(-3, 7)$ and determine the equation of the line.



33. Graph the line that passes through the points $(4, 6)$ and $(4, 7)$ and determine the equation of the line.



34. What is an equation of the line that passes through the points $(-1, -4)$ and $(-4, 5)$?

35. What is an equation of the line that passes through the points $(-1, 3)$ and $(4, 8)$?

36. Write the equation of the line that passes through the points $(9, 1)$ and $(9, 7)$. Put your answer in fully simplified *point-slope* form, unless it is a vertical or horizontal line.

37. Write the equation of the line that passes through the points $(0, 2)$ and $(6, -2)$. Put your answer in fully simplified *point-slope* form, unless it is a vertical or horizontal line.

38. Solve the following equation for b.

$$(d - 8)b = g$$

39. Solve the following equation for g.

$$m + n^2 = g5Q$$

40. Factor $x^2 + 2x - 15$

41. Factor $x^2 - 3x - 10$

42. Factor the trinomial: $5x^2 + 36x + 36$

43. Factor the trinomial: $2x^2 + 21x + 49$

44. Factor completely: $2x^2 - 5x - 7$

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

46. Factor completely: $3x^2 - 16x + 5$

47. Factor completely: $2x^2 - 7x - 9$

48. Solve for all values of x by factoring.

$$x^2 + 6x - 1 = 6x$$

49. Solve for all values of x by factoring.

$$x^2 + 12x + 9 = 2x$$

50. Solve the quadratic by factoring.

$$x^2 - 4x = 3x + 18$$

51. Solve the quadratic by factoring.

$$x^2 + 14x - 16 = 7x + 2$$

52. Solve the quadratic by factoring.

$$5x^2 + 32x = -9x - 8$$

53. Solve the quadratic by factoring.

$$3x^2 + 4x - 18 = 9x - 10$$

54. Express in simplest radical form: $\sqrt{112}$

55. Express in simplest radical form: $\sqrt{48}$

56. Express in simplest radical form.

$$\sqrt{48} - \sqrt{75}$$

57. Express in simplest radical form.

$$-5\sqrt{6} - \sqrt{6}$$

58. Express in simplest radical form.

$$\frac{\sqrt{50}}{\sqrt{10}}$$

59. Express in simplest radical form.

$$\frac{\sqrt{24}}{4}$$

60. Express in simplest form with a rational denominator.

$$\frac{5}{\sqrt{12}}$$

61. Express in simplest form with a rational denominator.

$$\frac{2}{\sqrt{7}}$$

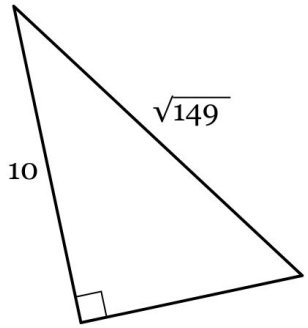
62. Use the quadratic formula to solve. Express your answer in simplest form.

$$-2d^2 - 20d + 25 = -6d^2$$

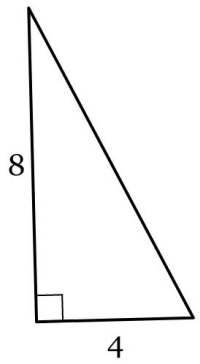
63. Use the quadratic formula to solve. Express your answer in simplest form.

$$10n^2 - 13n + 6 = 6n$$

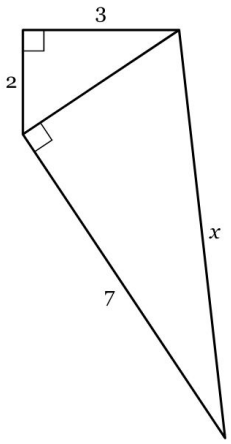
64. Find the length of the third side. If necessary, write in **simplest radical form**.



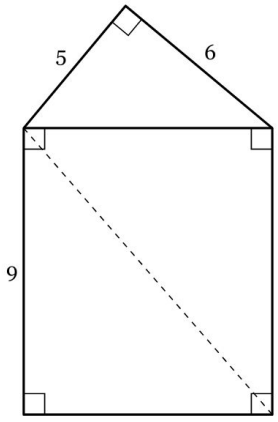
65. Find the length of the third side. If necessary, write in **simplest radical form**.



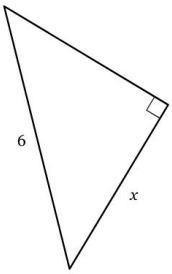
66. Solve for x *to the nearest tenth*.



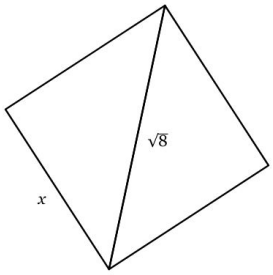
67. What is the length of the dotted line in the diagram below? Leave your answer in simplest radical form.



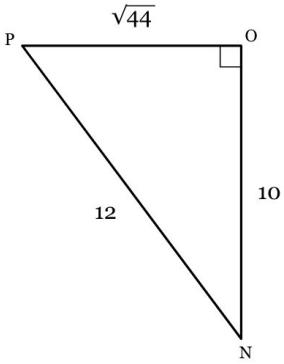
68. The triangle below is isosceles. Find the length of side x in simplest radical form with a rational denominator.



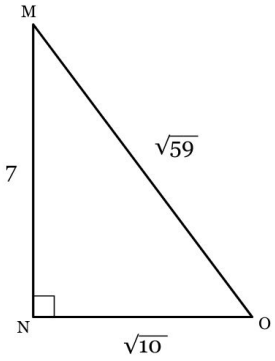
69. The figure below is a square. Find the length of side x in simplest radical form with a rational denominator.



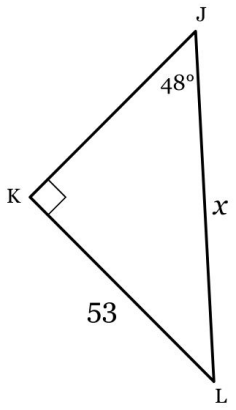
70. Find the exact value of tan N in simplest radical form.



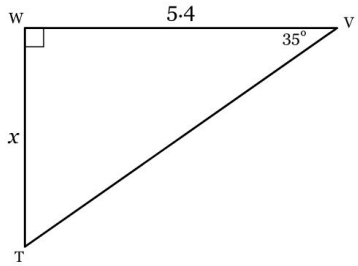
71. Find the exact value of cos M in simplest radical form.



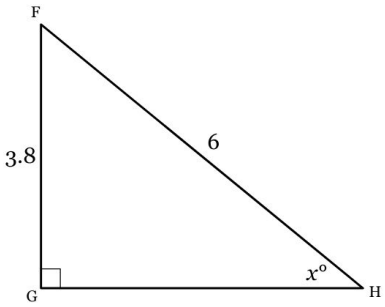
72. Solve for x. Round to the nearest tenth, if necessary.



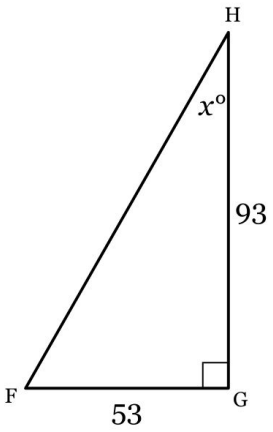
73. Solve for x. Round to the nearest tenth, if necessary.



74. Solve for x. Round to the nearest tenth of a degree, if necessary.



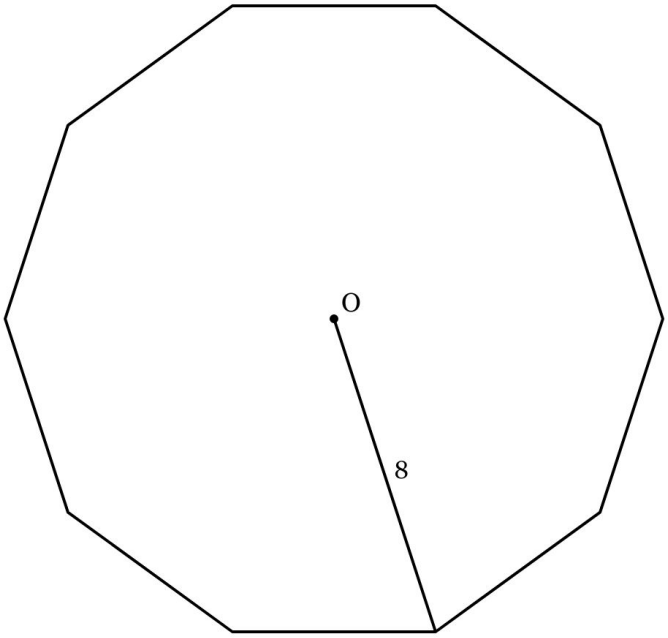
75. Solve for x. Round to the nearest tenth of a degree, if necessary.



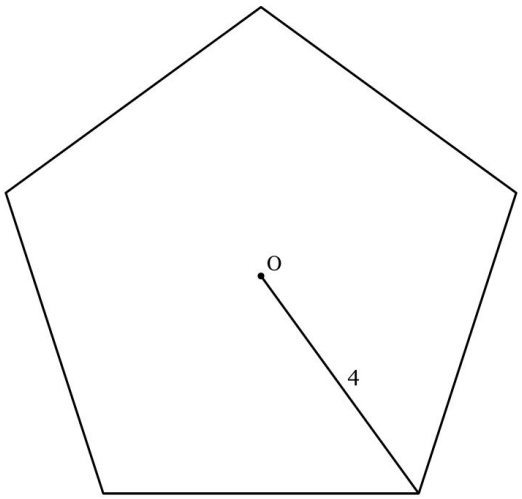
76. From his eye, which stands 1.63 meters above the ground, Yusuf measures the angle of elevation to the top of a prominent skyscraper to be 33°. If he is standing at a horizontal distance of 281 meters from the base of the skyscraper, what is the height of the skyscraper? Round your answer to the nearest tenth of a meter if necessary.

77. From a hot-air balloon, Khadija measures a 39° angle of depression to a landmark that's 802 feet away, measuring horizontally. What's the balloon's vertical distance above the ground? Round your answer to the nearest tenth of a foot if necessary.

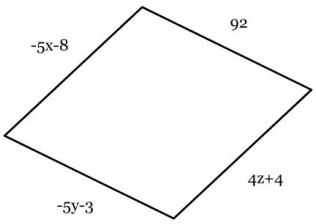
78. O is the center of the regular decagon below. Find its area. Round to the nearest tenth if necessary.



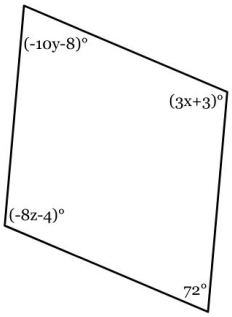
79. O is the center of the regular pentagon below. Find its perimeter. Round to the nearest tenth if necessary.



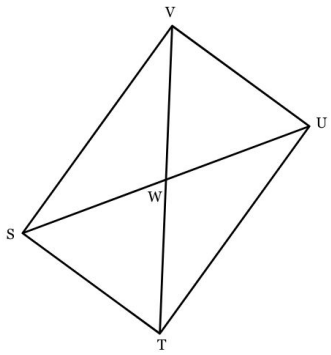
80. Find the value of x, y, and z, in the rhombus below.



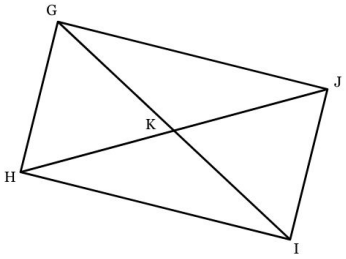
81. Find the value of x, y, and z in the rhombus below.



82. Given rectangle $STUV$ below, $UW = 28$. If $WS = -8x + 4$, solve for x.



83. Given rectangle $GHIJ$ below, $JK = 46$. If $GK = x - 10$, solve for x.



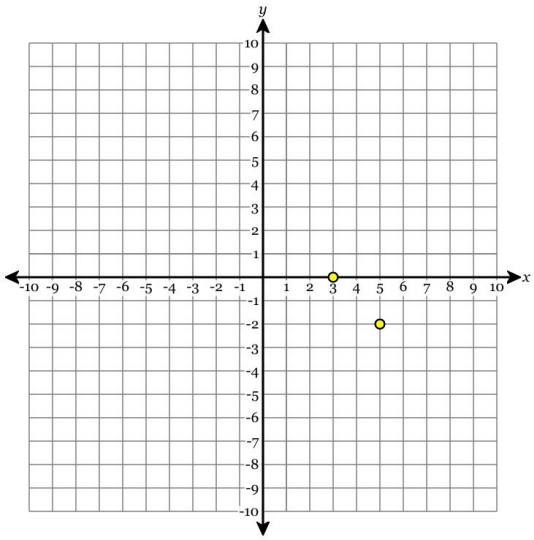
84. Find the midpoint of the segment with the following endpoints.

$$(-7, 0) \text{ and } (2, 9)$$

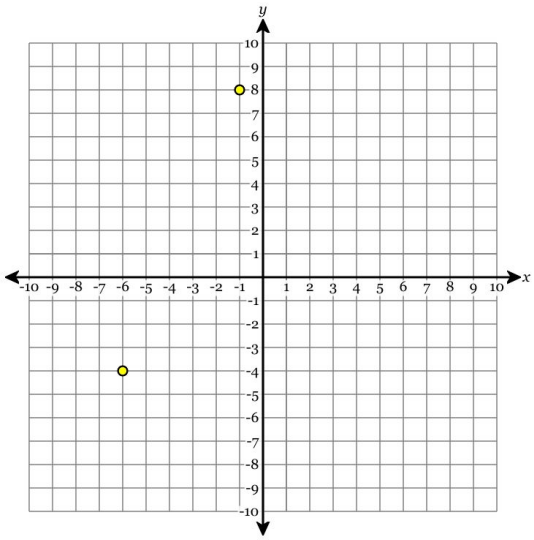
85. Find the midpoint of the segment with the following endpoints.

$$(6, 4) \text{ and } (2, -6)$$

86. Find the distance between the two points in simplest radical form.



87. Find the distance between the two points in simplest radical form.



88. The midpoint of $\overline{\mathrm{AB}}$ is $M(7, 0)$. If the coordinates of A are $(6, 1)$, what are the coordinates of B?

89. The midpoint of $\overline{\mathrm{AB}}$ is $M(-2, 2)$. If the coordinates of A are $(4, -3)$, what are the coordinates of B?

90. Which equation represents a line which is perpendicular to the x-axis?

A. $y = x + 4$ B. $x = 4y$

C. $y = 4$ D. $x = 8$

91. Which equation represents a line which is perpendicular to the line $4x - 3y = 3$?

A. $y = -\frac{3}{4}x - 5$

B. $y = \frac{3}{4}x + 8$

C. $y = \frac{4}{3}x - 7$

D. $y = -\frac{4}{3}x + 1$

92. The lines represented by the equations $y - \frac{5}{4}x = 5$ and $15y - 12x = -30$ are

A. perpendicular

B. neither parallel nor perpendicular

C. parallel

D. the same line

93. The lines represented by the equations $y = \frac{5}{2}x + 6$ and $y - \frac{5}{2}x = 6$ are

A. neither parallel nor perpendicular

B. the same line

C. parallel

D. perpendicular

94. The points P$(-6, 5)$, Q$(-6, -2)$, R$(0, -8)$, and S $(0, -1)$ form parallelogram PQRS. (a) Graph the parallelogram below. (b) Find its perimeter. Round your answer to the nearest tenth if necessary.

Click on the graph to plot a point. Click a point to delete it.

