

Name _____ Date _____

Meeting Friends The Distance Formula

Vocabulary

Explain the relationship between the two terms, discussing in particular their similarities and differences.

1. Distance Formula and Pythagorean Theorem

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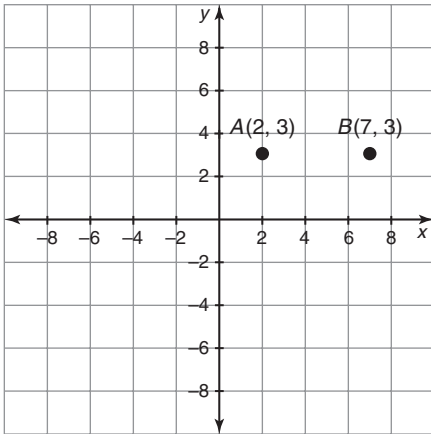
Problem Set

Use the Pythagorean Theorem to determine the length of the hypotenuse (c) of each right triangle, given the lengths of its legs (a and b). Round your answer to the nearest tenth, if necessary.

1. $a = 6$ cm, $b = 8$ cm
 $c = 10$ cm
2. $a = 12$ cm, $b = 5$ cm
3. $a = 7$ in., $b = 8$ in.
4. $a = 10$ m, $b = 18$ m

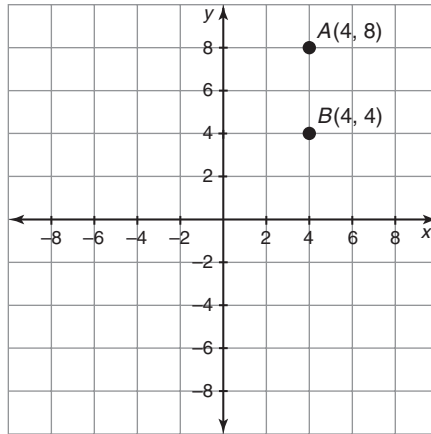
Write and simplify an expression for the distance between points A and B on each graph.

5.



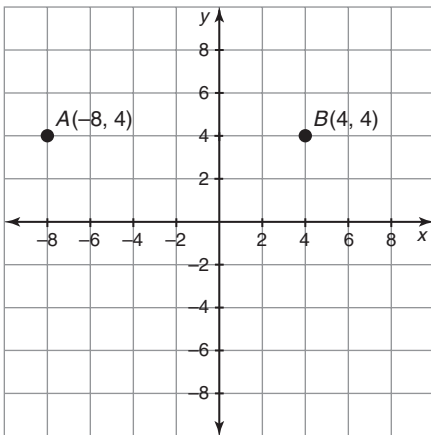
$$7 - 2 = 5$$

6.

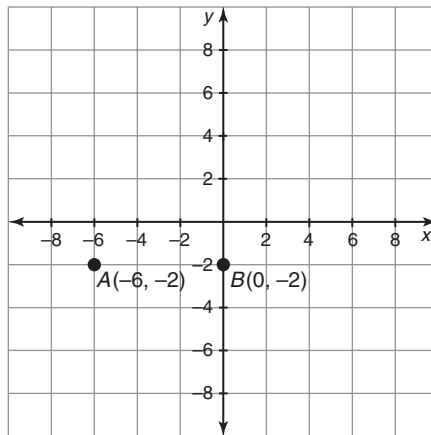


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7.



8.



Use the Distance Formula to calculate each value of x . Round your answer to the nearest tenth, if necessary.

9. The distance between $(0, 3)$ and $(x, 6)$ is 8 units.

$$8 = \sqrt{(x - 0)^2 + (6 - 3)^2}$$

$$8 = \sqrt{x^2 + 9}$$

$$64 = x^2 + 9$$

$$55 = x^2$$

$$x \approx \pm 7.4$$

10. The distance between $(0, 4)$ and $(x, 8)$ is 10 units.

11. The distance between $(1, 0)$ and $(x, 4)$ is 4 units.

12. The distance between $(1, 9)$ and $(x, -2)$ is 11 units.

Use the Distance Formula to calculate each value of y . Round your answer to the nearest tenth, if necessary.

13. The distance between $(4, 0)$ and $(5, y)$ is 3 units.

$$3 = \sqrt{(5 - 4)^2 + (y - 0)^2}$$

$$3 = \sqrt{1 + y^2}$$

$$9 = 1 + y^2$$

$$8 = y^2$$

$$y \approx \pm 2.8$$

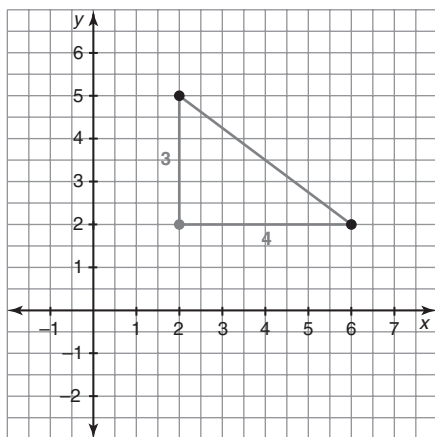
14. The distance between $(6, 0)$ and $(1, y)$ is 10 units.

15. The distance between $(-8, 3)$ and $(12, y)$ is 20 units.

16. The distance between $(3, 8)$ and $(-2, y)$ is 5 units.

Calculate the distance between the two points shown on the grid. Round your answer to the nearest tenth, if necessary.

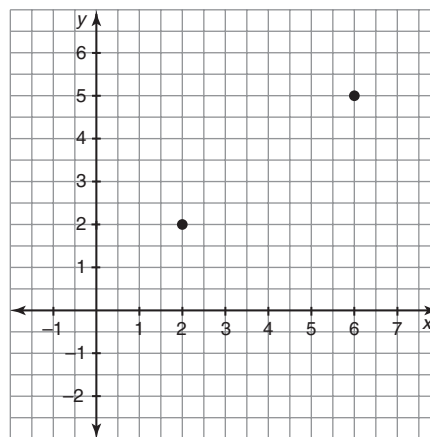
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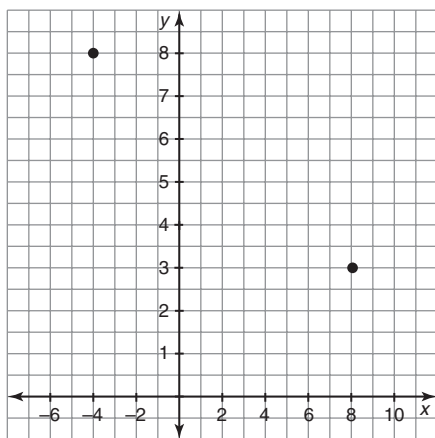
$$d^2 = 4^2 + 3^2 = 25$$

$$d = 5$$

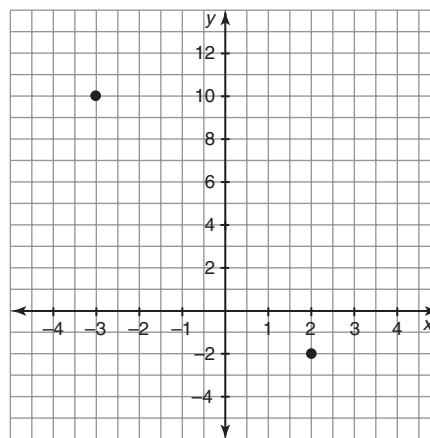
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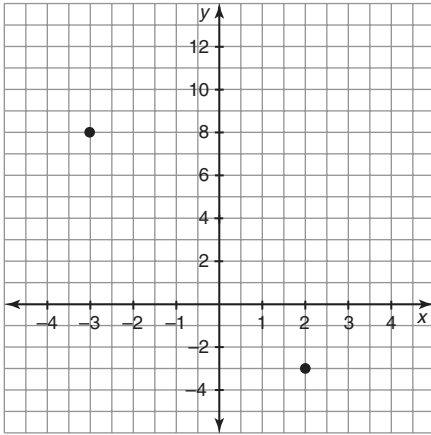
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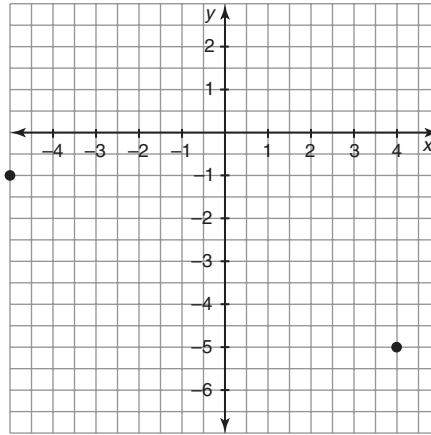
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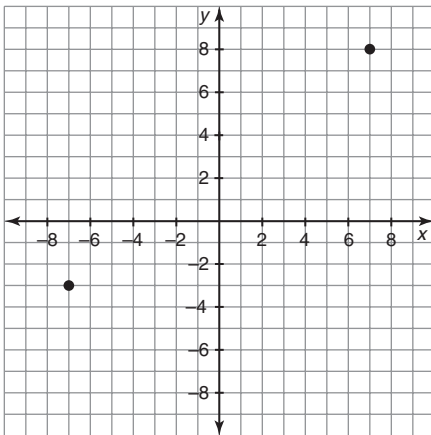
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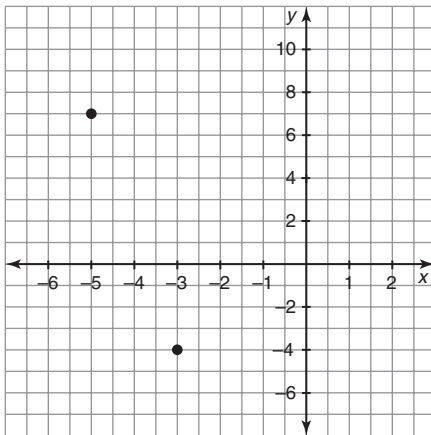
22.



23.



24.



Calculate the distance between each pair of points. Round your answer to the nearest tenth, if necessary.

25. (4, 2) and (5, 12)

$$d = \sqrt{(5 - 4)^2 + (12 - 2)^2} = \sqrt{1^2 + 10^2} = \sqrt{1 + 100} = \sqrt{101} \approx 10.0$$

26. (1, 10) and (7, 2)

27. (5, -2) and (-1, 9)

28. (-1, -3) and (-6, -10)

29. (-5, 8) and (-7, -2)

30. (-6, -1) and (5, -8)

31. (-7, -7) and (4, 5)

32. (5, -9) and (10, 12)

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Treasure Hunt The Midpoint Formula

Vocabulary

Define each term in your own words.

1. midpoint

2. Midpoint Formula

Problem Set

Use the Midpoint Formula to determine the midpoint of each line segment that has the given points as its endpoints. Show all your work.

1. (2, 3) and (6, 9)
$$\left(\frac{2+6}{2}, \frac{3+9}{2}\right) = \left(\frac{8}{2}, \frac{12}{2}\right) = (4, 6)$$
2. (6, 0) and (8, 14)
3. (-3, -8) and (-7, -4)
4. (-2, -11) and (-16, -3)

5. $(7, -1)$ and $(-5, 11)$

6. $(-3, 15)$ and $(21, -17)$

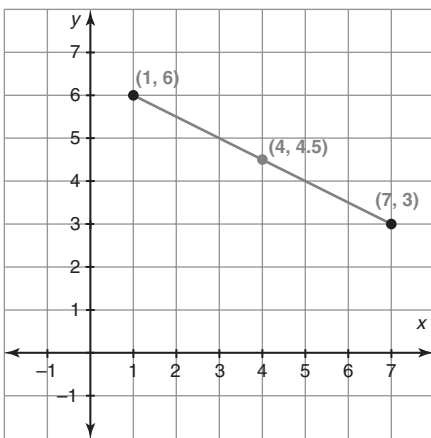
7. $(-8, 6)$ and $(21, -13)$

8. $(4, -1)$ and $(-33, 16)$

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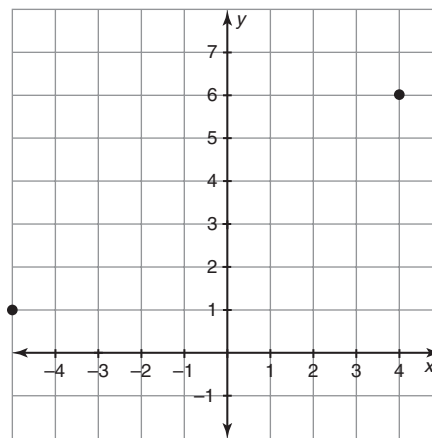
Determine the midpoint of the line segment that has the given points (shown on the grid) as its endpoints. Then graph the midpoint on the given grid.

9.

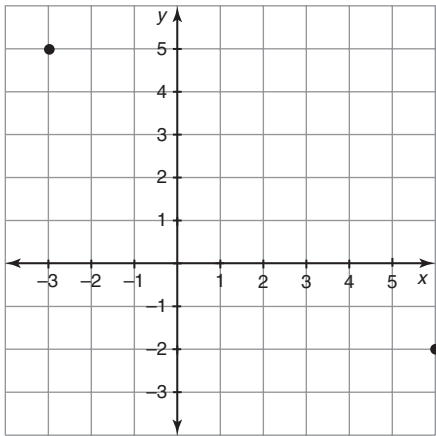


$$\left(\frac{7+1}{2}, \frac{3+6}{2}\right) = \left(\frac{8}{2}, \frac{9}{2}\right) = (4, 4.5)$$

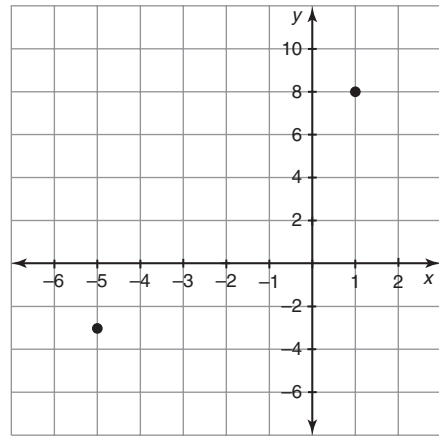
10.



11.



12.



The coordinates of an endpoint of a line segment and its midpoint are given. Determine the coordinates of the other endpoint.

13. endpoint: (10, 6); midpoint: (6, 2)

$$\left(\frac{10 + x}{2}, \frac{6 + y}{2}\right) = (6, 2) = \left(\frac{12}{2}, \frac{4}{2}\right)$$

$$10 + x = 12$$

$$x = 2$$

$$6 + y = 4$$

$$y = -2$$

$$(2, -2)$$

14. endpoint: (4, 7); midpoint: (0, 1)

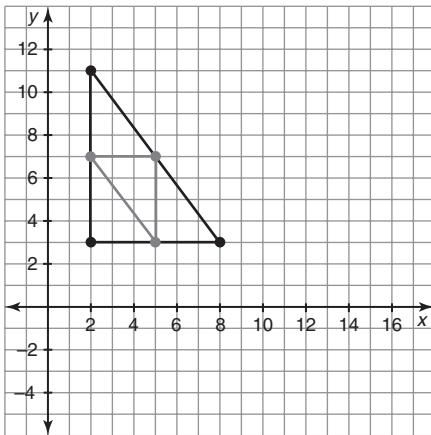
15. endpoint: (0, 3); midpoint: (2, 4)

16. endpoint: (6, 6); midpoint: (2, 7)

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For each triangle, calculate the midpoint of each side using the Midpoint Formula. Then draw each midpoint on the graph and connect the midpoints with straight lines to create a smaller triangle inside the first.

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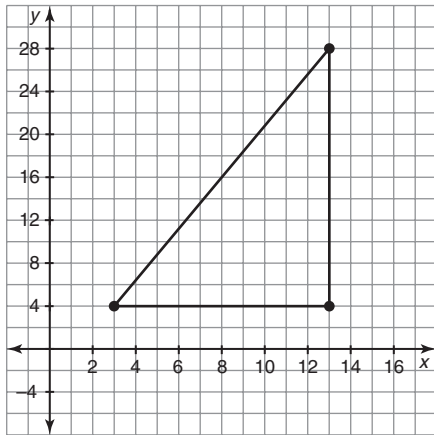


$$\left(\frac{8 + 2}{2}, \frac{3 + 3}{2}\right) = \left(\frac{10}{2}, \frac{6}{2}\right) = (5, 3)$$

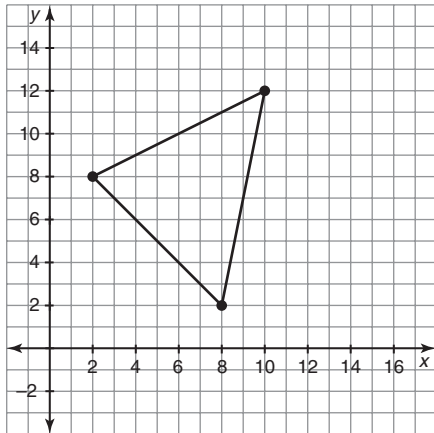
$$\left(\frac{8 + 2}{2}, \frac{3 + 11}{2}\right) = \left(\frac{10}{2}, \frac{14}{2}\right) = (5, 7)$$

$$\left(\frac{2 + 2}{2}, \frac{3 + 11}{2}\right) = \left(\frac{4}{2}, \frac{14}{2}\right) = (2, 7)$$

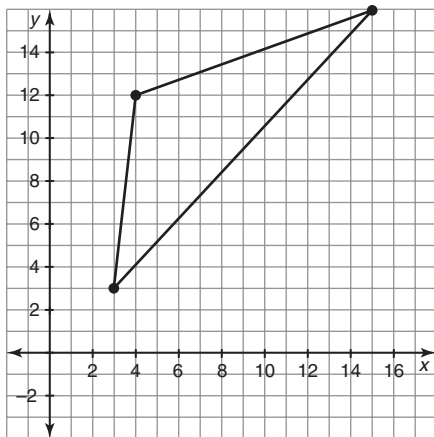
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19.



20.



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Parking Lot Design Parallel and Perpendicular Lines in the Coordinate Plane

Vocabulary

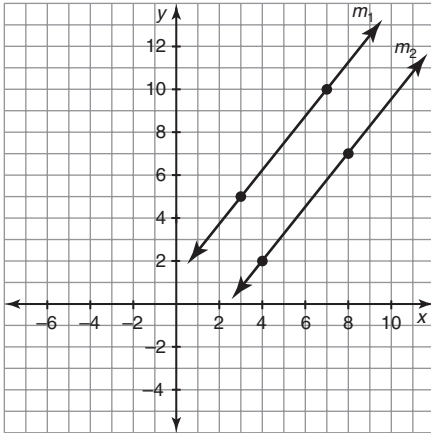
Match each term with its corresponding definition.

- | | |
|-------------------------|---|
| 1. slope | a. lines with the same slope and different y -intercepts |
| 2. point-slope form | b. a number whose product with another number is -1 |
| 3. slope-intercept form | c. a line that has an equation of the form $x = b$ where b is any real number |
| 4. y -intercept | d. a number whose product with another number is 1 |
| 5. parallel lines | e. the ratio of the vertical change to the horizontal change |
| 6. perpendicular lines | f. a line that has an equation of the form $y = a$ where a is any real number |
| 7. reciprocal | g. $y = mx + b$ |
| 8. negative reciprocal | h. the point where a line intersects the y -axis |
| 9. horizontal line | i. $y - y_1 = m(x - x_1)$ |
| 10. vertical line | j. two lines that intersect at right angles |

Problem Set

Determine whether each pair of lines are parallel.

1.

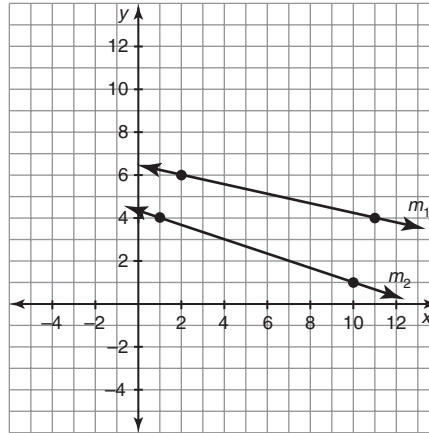


$$m_1 = \frac{10 - 5}{7 - 3} = \frac{5}{4},$$

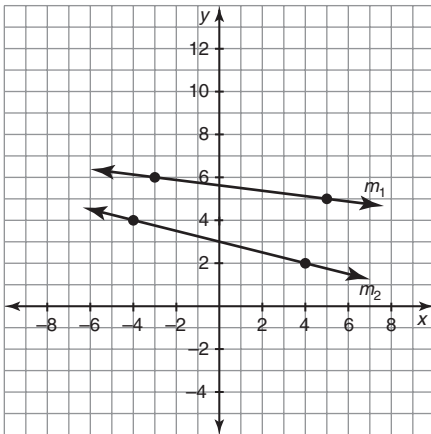
$$m_2 = \frac{7 - 2}{8 - 4} = \frac{5}{4}$$

Yes, they are parallel.

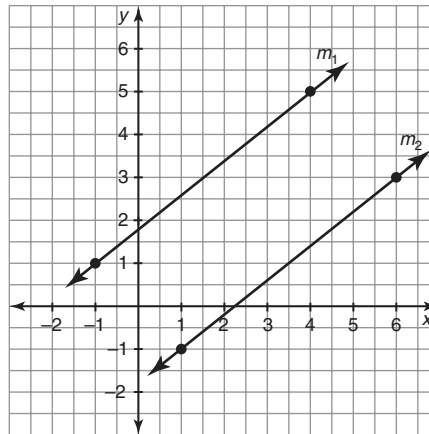
2.



3.



4.



5. $y = 3x - 1$ and $y = 3x + 5$

6. $y = 4x - 5$ and $y = 3x - 5$

7. $y + 2x = 6$ and $x + 2y = 6$

8. $y - x = 4$ and $x - y = 4$

Write the slope-intercept form of the equation of the line that is parallel to the given line that passes through the given point.

9. $y = 3x - 3$, $(2, 2)$

The slope must be 3, and the line passes through $(2, 2)$, so we can use the point-slope form for the line.

$$y - 2 = 3(x - 2) = 3x - 6$$

$$y = 3x - 4$$

10. $y = 4x - 5$, $(1, -1)$

11. $y = \frac{1}{2}x$, $(-5, -5)$

11

12. $y = \frac{1}{3}x + 6$, $(0, 9)$

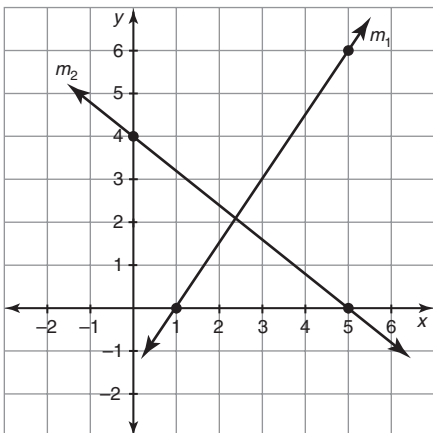
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13. $x + 3y = 5$, $(-1, -2)$

14. $2x + 5y = 6$, $(-4, 5)$

Determine whether each pair of lines are perpendicular.

15.

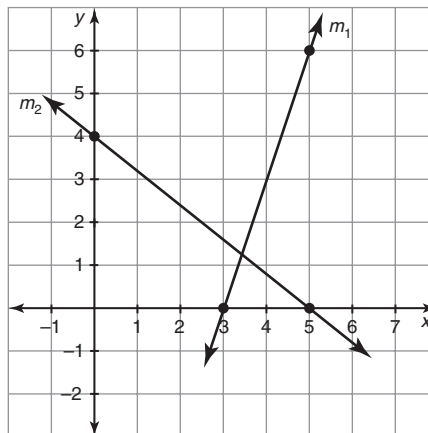


$$m_1 = \frac{6 - 0}{5 - 1} = \frac{6}{4}, m_2 = \frac{0 - 4}{5 - 0} = -\frac{4}{5},$$

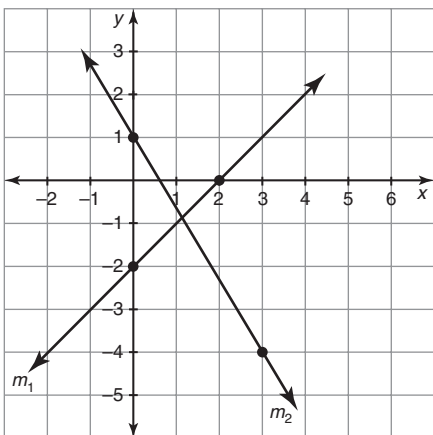
$$m_1 \cdot m_2 \neq -1$$

No, they are not perpendicular.

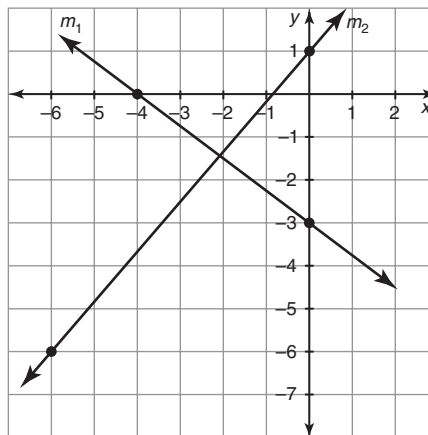
16.



17.



18.



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19. $y = 2x + 4$ and $y = -\frac{1}{2}x + 4$

20. $y = 5x - 5$ and $y = \frac{1}{5}x + 2$

21. $y + 2x = 7$ and $x + 2y = 3$

22. $y + 2x = 3$ and $x - 2y = 5$

Write the slope-intercept form of the equation of the line that is perpendicular to the given line and passes through the given point.

23. $y = 4x + 1$, $(3, 0)$

The slope of the perpendicular line must be $-\frac{1}{4}$, and the line passes through $(3, 0)$, so we can use the point-slope form for the line.

$$y - 0 = -\frac{1}{4}(x - 3) = -\frac{1}{4}x + \frac{3}{4}$$

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

24. $y = -\frac{1}{5}x$, $(2, -3)$

25. $y = \frac{1}{2}x$, $(-4, 4)$

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26. $y = \frac{7}{3}x - 6$, $(7, -7)$

27. $x + 2y = 10$, $(1, 2)$

28. $3x - 4y = 12$, $(6, 8)$

Write equations for the horizontal and vertical lines that pass through each point.

29. $(3, -1)$

Horizontal: $y = -1$

Vertical: $x = 3$

30. $(5, 8)$

31. $(-10, -15)$

11

32. $(-7, 7)$

Write an equation for the line that is perpendicular to the given line and passes through the given point.

33. $x = 7$ and $(5, -4)$

$y = -4$

34. $x = -10$ and $(-1, 12)$

35. $y = 13$ and $(-13, 0)$

36. $y = -3$ and $(6, 16)$

Calculate the distance between each line and point. Round to the nearest hundredth, if necessary.

37. $y = 2x - 1$ and $(0, 4)$

The perpendicular line has slope $-\frac{1}{2}$ and passes through $(0, 4)$. Using the slope-intercept formula we get $y = -\frac{1}{2}x + 4$. The two lines intersect at

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

$$\frac{5}{2}x = 5$$

$$x = 2$$

$$y = 2(2) - 1 = 3$$

The distance between the points $(0, 4)$ and $(2, 3)$ is

$$d = \sqrt{(2 - 0)^2 + (3 - 4)^2}$$

$$= \sqrt{4 + 1}$$

$$= \sqrt{5}$$

$$\approx 2.24$$

38. $y = \frac{1}{3}x + 5$ and $(0, -5)$

39. $y = -4x - 4$ and $(0, 13)$

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40. $y = -\frac{1}{2}x + 6$ and $(0, 11)$

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Building a Henge Triangles in the Coordinate Plane

Vocabulary

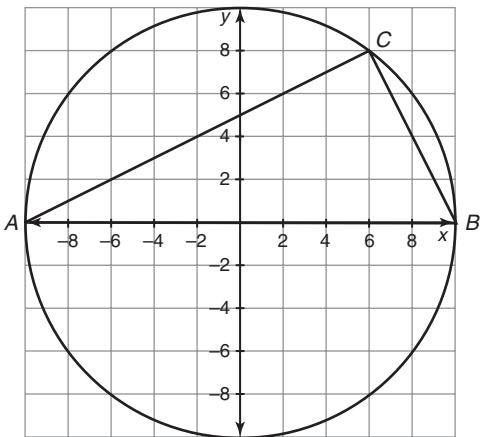
Write the term that best completes each statement.

1. The _____ of a triangle is a point of concurrency formed by the intersection of the three altitudes of the triangle.
2. A(n) _____ is a point where several lines intersect at a single spot.
3. A(n) _____ is a triangle whose vertices lie on a circle.
4. The _____ of a triangle is a point of concurrency formed by the intersection of the three angle bisectors of the triangle.
5. A(n) _____ is a triangle whose legs all have different lengths.
6. A(n) _____ is a triangle with all three legs having equal length.
7. A(n) _____ is a line drawn from the midpoint of one leg of a triangle to the midpoint of another leg of the triangle.
8. The _____ of a triangle is a point of concurrency formed by the intersection of the three perpendicular bisectors of the triangle.
9. The _____ of a triangle is the point of concurrency formed by the intersection of the three medians of a triangle.

Problem Set

Calculate the slopes of the three sides of each triangle.

1.

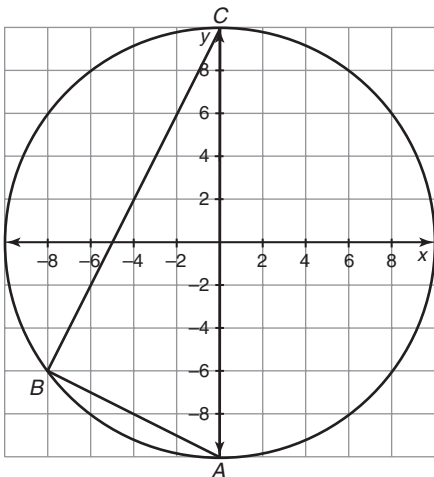


$$\text{slope } \overline{AB} = \frac{0 - 0}{10 - (-10)} = 0$$

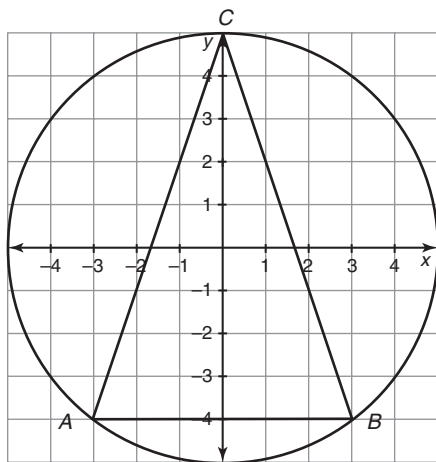
$$\text{slope } \overline{BC} = \frac{0 - 8}{10 - 6} = \frac{-8}{4} = -2$$

$$\text{slope } \overline{AC} = \frac{8 - 0}{6 - (-10)} = \frac{8}{16} = \frac{1}{2}$$

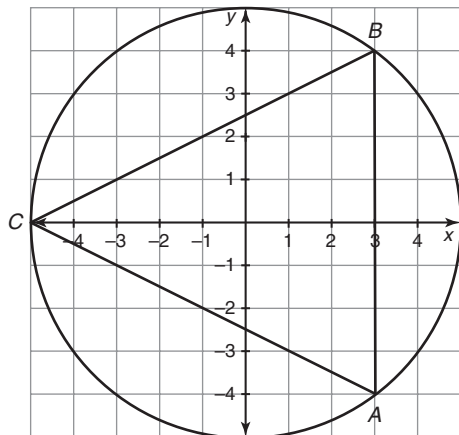
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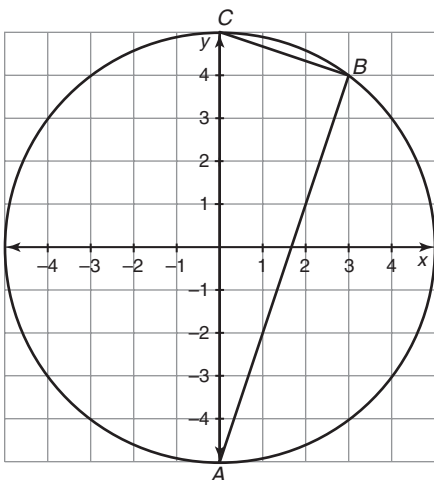


4.



Calculate the length of each side of the given triangle. Simplify, but do not evaluate any radicals.

5.

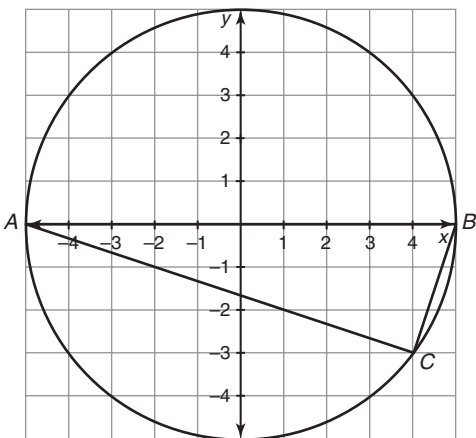


$$AB = \sqrt{(3 - 0)^2 + [4 - (-5)]^2} = \sqrt{9 + 81} = \sqrt{90} = 3\sqrt{10}$$

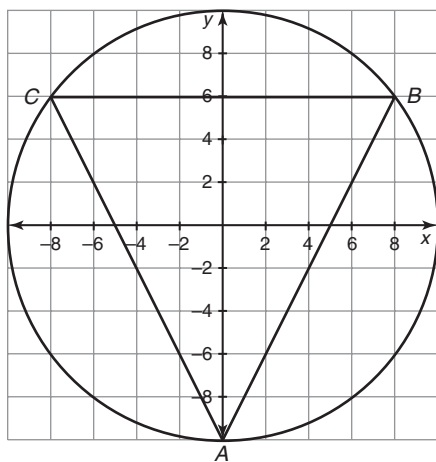
$$BC = \sqrt{(0 - 3)^2 + (5 - 4)^2} = \sqrt{9 + 1} = \sqrt{10}$$

$$AC = \sqrt{(0 - 0)^2 + [5 - (-5)]^2} = \sqrt{0 + 100} = \sqrt{100} = 10$$

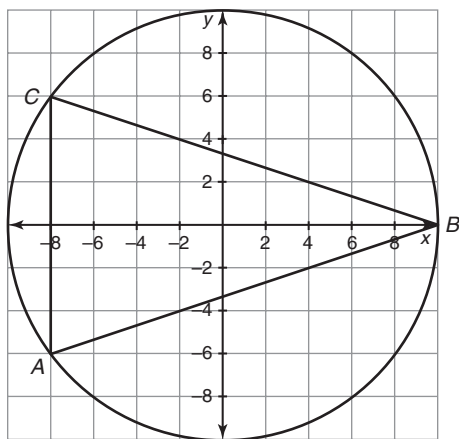
6.



7.



8.



For triangle ABC whose vertices are given, determine the coordinates of the three midsegments, M , N , and P , where M is the midsegment of \overline{AB} , N is the midsegment of \overline{BC} , and P is the midsegment of \overline{AC} .

9. $A(2, 3), B(6, 8), C(4, 10)$

$$M = \left(\frac{2 + 6}{2}, \frac{3 + 8}{2} \right) = (4, 5.5)$$

$$N = \left(\frac{6 + 4}{2}, \frac{8 + 10}{2} \right) = (5, 9)$$

$$P = \left(\frac{2 + 4}{2}, \frac{3 + 10}{2} \right) = (3, 6.5)$$

10. $A(3, -1), B(-4, 2), C(0, 7)$

11

11. $A(-1, -5), B(-6, -2), C(-3, 5)$

12. $A(-2, 7), B(1, 0), C(-3, 1)$

Classify each triangle with the given vertices as isosceles, equilateral, or scalene. Then indicate whether the triangle is a right triangle.

13. $A(2, 3), B(2, -3), C(0, -2)$

slope \overline{AB} is undefined

$$\text{slope } \overline{BC} = \frac{-3 - (-2)}{2 - 0} = -\frac{1}{2}$$

$$\text{slope } \overline{AC} = \frac{3 - (-2)}{2 - 0} = \frac{5}{2}$$

$$AB = \sqrt{(2 - 2)^2 + (3 - (-3))^2} = \sqrt{0^2 + 6^2} = \sqrt{36} = 6$$

$$BC = \sqrt{(2 - 0)^2 + (-3 - (-2))^2} = \sqrt{2^2 + (-1)^2} = \sqrt{4 + 1} = \sqrt{5}$$

$$AC = \sqrt{(2 - 0)^2 + (3 - (-2))^2} = \sqrt{2^2 + 5^2} = \sqrt{4 + 25} = \sqrt{29}$$

ABC has no sides at right angles and no sides of equal length, so it is a scalene triangle.

14. $A(1, 4), B(4, 4), C(1, 8)$

15. $A(0, 0), B(5, 0), C(4, 5)$

16. $A(0, 0), B(10, 0), C(5, 5\sqrt{3})$

17. $A(-1, -1), B(-1, 3), C(-4, -1)$

11

18. $A(1, 2), B(-1, 4), C(-2, 6)$

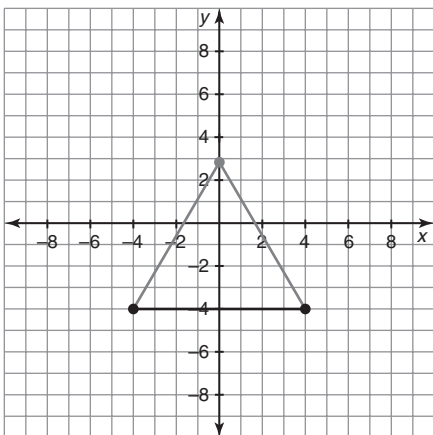
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19. $A(0, -3), B(0, 3), C(-3\sqrt{3}, 0)$

20. $A(2, 0), B(-2, 0), C(0, 2)$

Construct an equilateral triangle on the given grid that contains the two indicated points. Identify the approximate coordinates for the third point.

21.



$$\text{midpoint: } \frac{4 - (-4)}{2}, \frac{-4 - (-4)}{2} = (0, -4)$$

$$d = \sqrt{(4 - (-4))^2 + (-4 - (-4))^2}$$

$$d = 8$$

$$\sqrt{(x - 4)^2 + (y - (-4))^2} = 8$$

$$((0) - 4)^2 + (y + 4)^2 = 64$$

$$(y + 4)^2 = 48$$

$$y + 4 = \pm\sqrt{48} = \pm 4\sqrt{3}$$

$$y = \pm 4\sqrt{3} - 4$$

$$(x, y) = (0, \pm 4\sqrt{3} - 4) \approx (0, 2.93) \text{ or } (0, -10.93)$$

$$\text{slope: } \frac{-4 - (-4)}{4 - (-4)} = 0$$

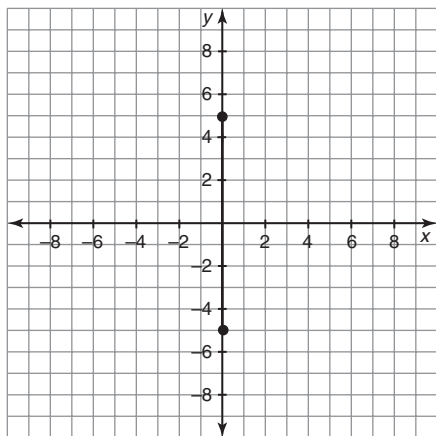
perpendicular slope is undefined

perpendicular line: $x = 0$

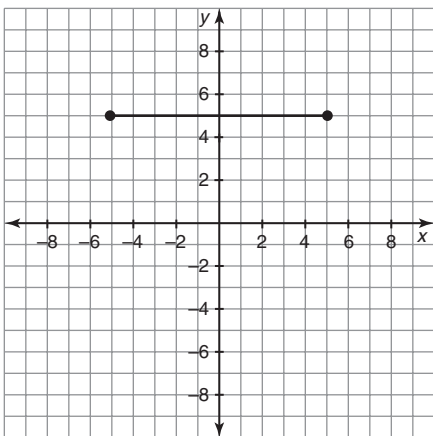
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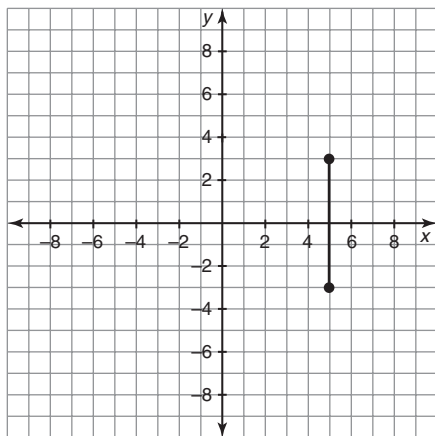
23.



Name _____

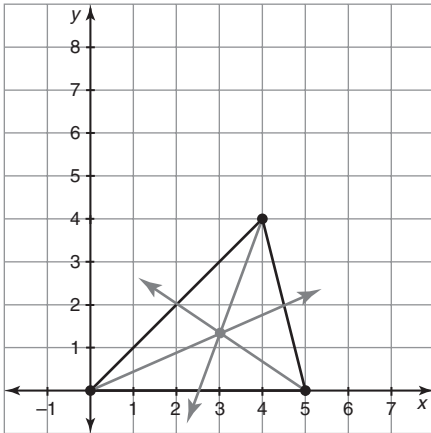
Date _____

24.

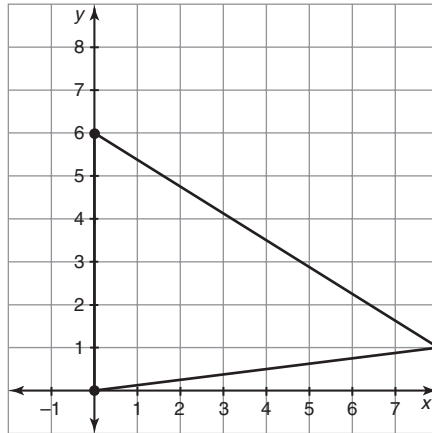


Construct the incenter of each triangle.

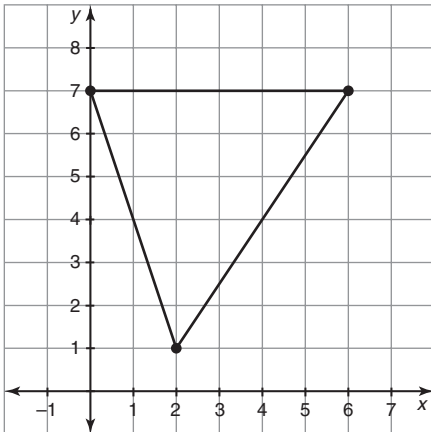
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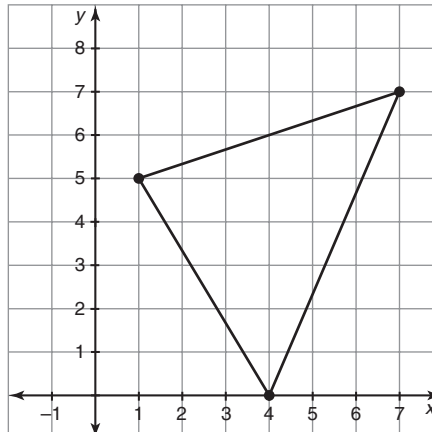
26.



27.



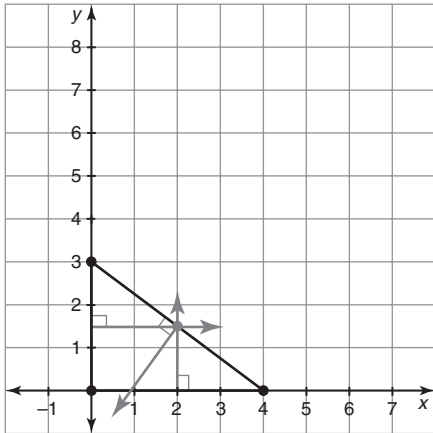
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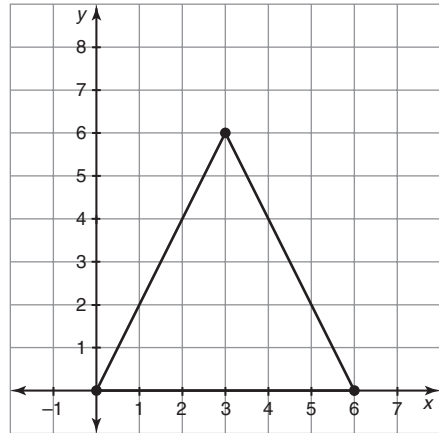
11

Construct the circumcenter of each triangle.

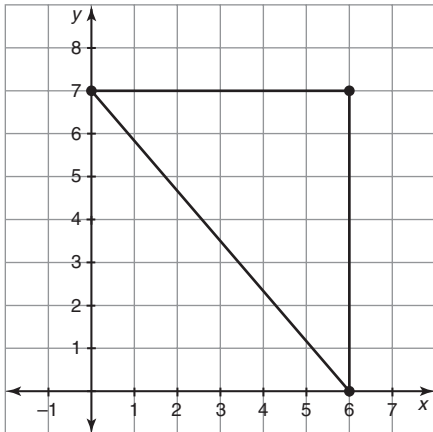
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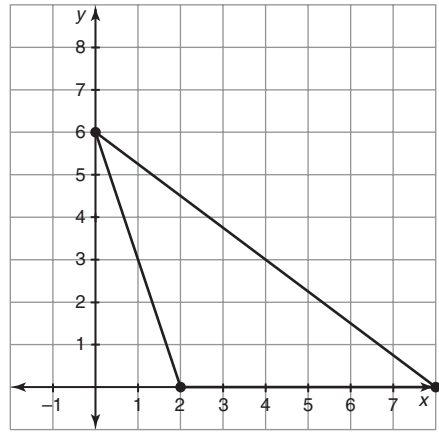
30.



31.

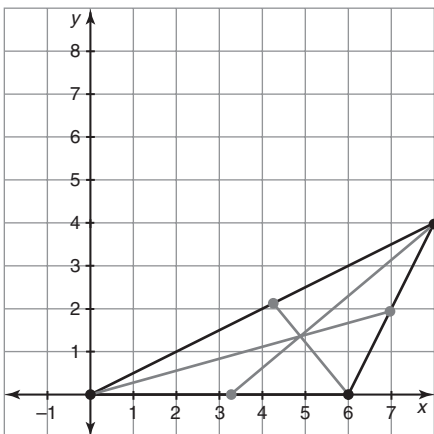


32.

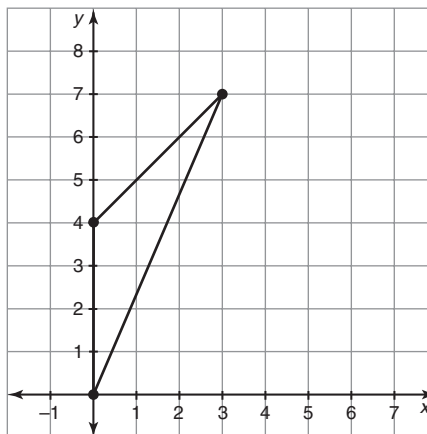


Construct the centroid of each triangle.

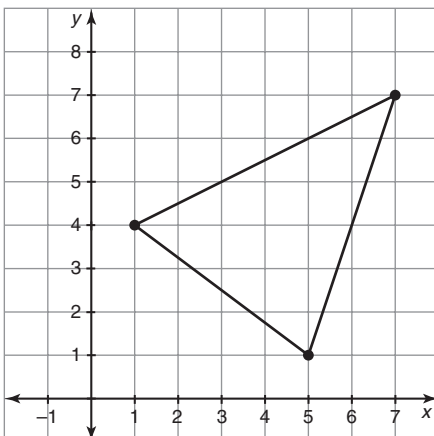
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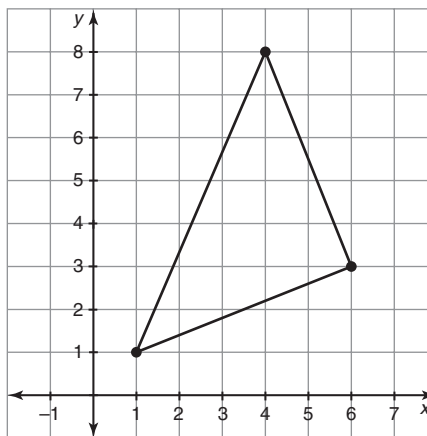
34.



35.

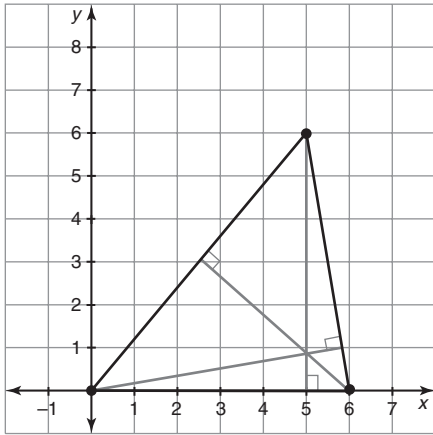


36.

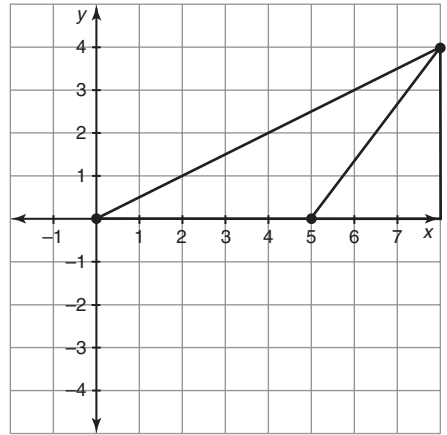


Construct the orthocenter of each triangle.

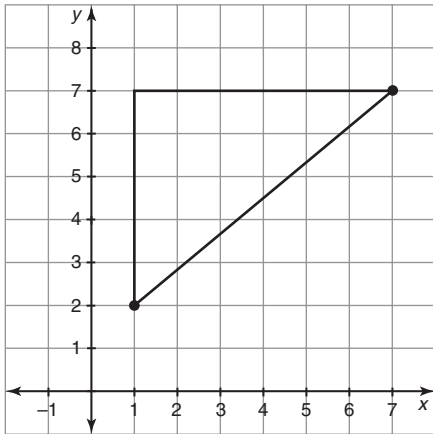
37.



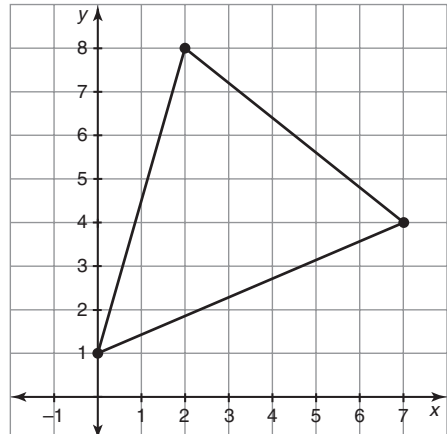
38.



39.



40.



For the triangle with the given set of vertices, calculate the coordinates of the centroid using algebra.

41. $(0, 0), (0, 6), (8, 0)$

Vertices: $(0, 0), (0, 6), (8, 0)$

Midpoints: $(0, 3), (4, 3), (4, 0)$

Segment from $(0, 0)$ to $(4, 3)$: slope = $\frac{3}{4}$, y -intercept = 0

$$y = \frac{3}{4}x$$

Segment from $(0, 6)$ to $(4, 0)$: slope = $-\frac{3}{2}$, y -intercept = 6

$$y = -\frac{3}{2}x + 6$$

Segment from $(8, 0)$ to $(0, 3)$: slope = $-\frac{3}{8}$, y -intercept = 3

$$y = -\frac{3}{8}x + 3$$

Set the equations for two medians equal to each other to locate the point of concurrency.

$$\frac{3}{4}x = -\frac{3}{2}x + 6$$

$$\frac{3}{4}x + \frac{3}{2}x = 6$$

$$\frac{9}{4}x = 6$$

$$x = \frac{24}{9} = \frac{8}{3}$$

$$y = \frac{3}{4} \cdot \frac{8}{3} = 2$$

The centroid is located at the point $\left(\frac{8}{3}, 2\right)$.

Name _____ Date _____

42. (2, 3), (10, 3), (10, 11)

43. $(1, 1), (3, 9), (7, 5)$

Name _____

Date _____

44. $(0, 11), (8, 3), (10, 9)$

For the triangle with the given set of vertices, calculate the coordinates of the circumcenter using algebra.

45. $(2, 3), (10, 5), (6, 11)$

Vertices: $(2, 3), (10, 5), (6, 11)$

Midpoints: $(6, 4), (8, 8), (4, 7)$

Segment from $(2, 3)$ to $(10, 5)$: slope = $\frac{1}{4}$, slope of perpendicular line is -4

$$y - 4 = -4(x - 6) = -4x + 24$$

$$y = -4x + 28$$

Segment from $(10, 5)$ to $(6, 11)$: slope = $-\frac{3}{2}$, slope of perpendicular line is $\frac{2}{3}$

$$y - 8 = \frac{2}{3}(x - 8) = \frac{2}{3}x - \frac{16}{3}$$

$$y = \frac{2}{3}x + \frac{8}{3}$$

Segment from $(6, 11)$ to $(2, 3)$: slope = 2 , slope of perpendicular line is $-\frac{1}{2}$

$$y - 7 = -\frac{1}{2}(x - 4) = -\frac{1}{2}x + 2$$

$$y = -\frac{1}{2}x + 9$$

Set the equations for two medians equal to each other to locate the point of concurrency.

$$-4x + 28 = -\frac{1}{2}x + 9$$

$$-\frac{7}{2}x = -19$$

$$x = \frac{38}{7}$$

$$y = -\frac{1}{2} \cdot \left(\frac{38}{7}\right) + 9 = -\frac{19}{7} + 9 = \frac{44}{7}$$

The circumcenter is located at the point $\left(\frac{38}{7}, \frac{44}{7}\right)$.

Name _____ Date _____

46. $(0, 0), (2, 6), (8, 2)$

47. $(2, 0)$, $(6, 8)$, $(8, 4)$

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48. (1, 4), (3, 8), (9, 2)

Name _____ Date _____

Planning a Subdivision Quadrilaterals in the Coordinate Plane

Vocabulary

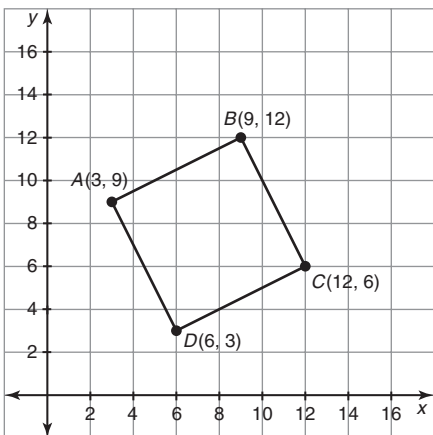
Explain the relationship between the two terms, discussing in particular their similarities and differences.

1. rectangle and parallelogram

Problem Set

Determine whether any of the sides of the figure are congruent. If so, identify them.

1.



$$\begin{aligned} AB &= \sqrt{(9 - 3)^2 + (12 - 9)^2} = \sqrt{6^2 + 3^2} \\ &= \sqrt{36 + 9} = \sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5} \end{aligned}$$

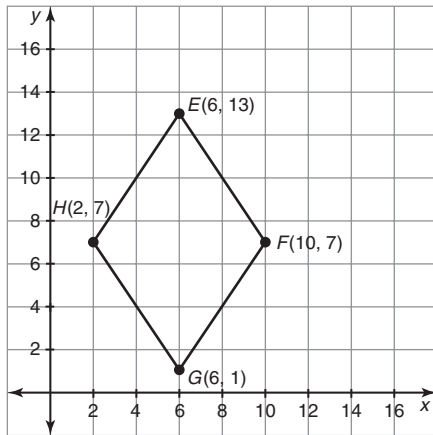
$$\begin{aligned} BC &= \sqrt{(12 - 9)^2 + (6 - 12)^2} = \sqrt{3^2 + (-6)^2} \\ &= \sqrt{9 + 36} = \sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5} \end{aligned}$$

$$\begin{aligned} CD &= \sqrt{(12 - 6)^2 + (6 - 3)^2} = \sqrt{6^2 + 3^2} \\ &= \sqrt{36 + 9} = \sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5} \end{aligned}$$

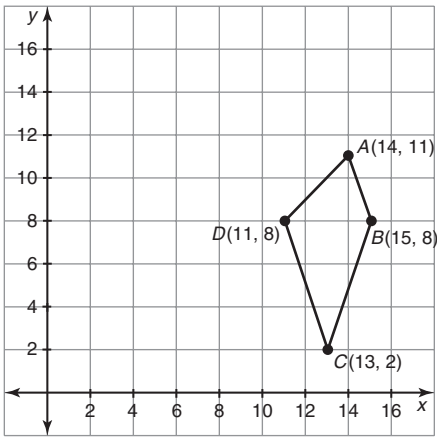
$$\begin{aligned} DA &= \sqrt{(6 - 3)^2 + (3 - 9)^2} = \sqrt{3^2 + (-6)^2} \\ &= \sqrt{9 + 36} = \sqrt{45} = \sqrt{9 \cdot 5} = 3\sqrt{5} \end{aligned}$$

Segments \overline{AB} , \overline{BC} , \overline{CD} , and \overline{DA} are all congruent.

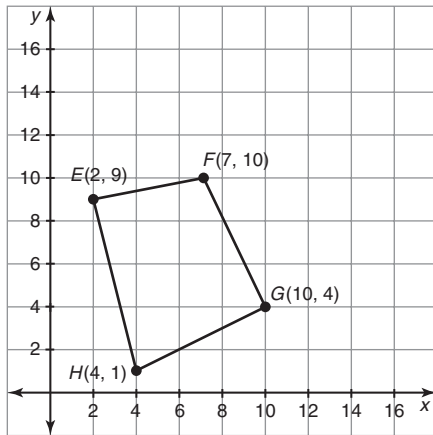
2.



3.

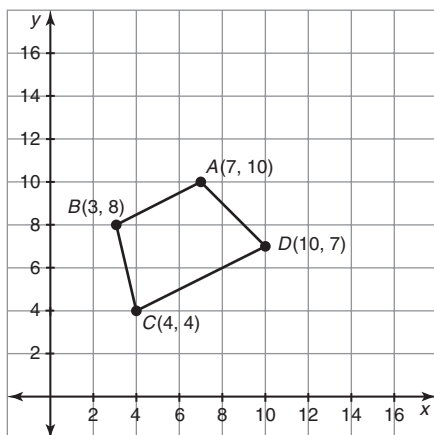


4.



Determine whether any sides of the figure are perpendicular or parallel.
If so, identify them.

5.



$$\text{Slope of } \overline{AB} = \frac{10 - 8}{7 - 3} = \frac{2}{4} = \frac{1}{2}$$

$$\text{Slope of } \overline{BC} = \frac{8 - 4}{3 - 4} = \frac{4}{-1} = -4$$

$$\text{Slope of } \overline{CD} = \frac{7 - 4}{10 - 4} = \frac{3}{6} = \frac{1}{2}$$

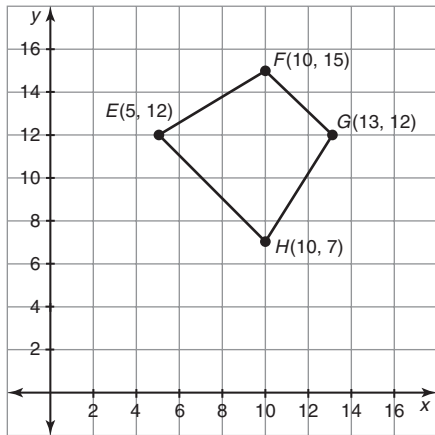
$$\text{Slope of } \overline{DA} = \frac{7 - 10}{10 - 7} = \frac{-3}{3} = -1$$

Segments \overline{AB} and \overline{CD} are parallel.

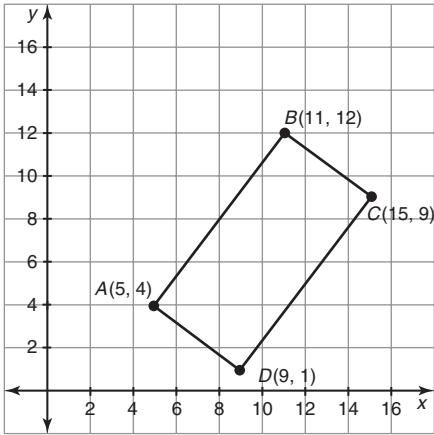
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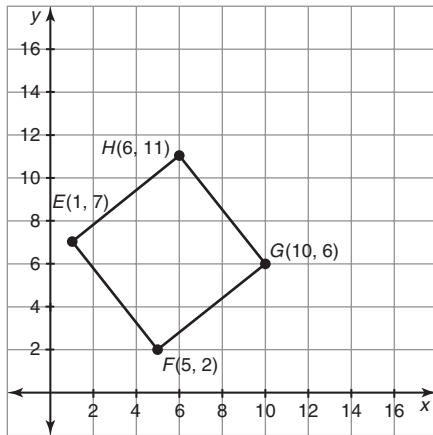
6.



7.



8.



A set of four points that define a quadrilateral are given. Classify each quadrilateral.

9. $A(2, 3)$, $B(8, 3)$, $C(8, 9)$, $D(2, 9)$

It is a square.

Two of the sides, side \overline{AB} and side \overline{CD} , are parallel to the x -axis and have 0 slope; and two of the sides, side \overline{BC} and side \overline{DA} , are parallel to the y -axis and have undefined slope. Thus the sides meet at right angles. Furthermore, all the sides have lengths equal to 6. Thus the quadrilateral is a square.

11

10. $A(-2, 4)$, $B(2, 4)$, $C(2, -4)$, $D(-2, -4)$

Name _____

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11. $A(-3, 2)$, $B(3, 2)$, $C(4, 5)$, $D(-2, 5)$

12. $A(-1, -2)$, $B(3, -2)$, $C(2, 1)$, $D(-2, 1)$

11

13. $A(2, 1)$, $B(5, 4)$, $C(0, 9)$, $D(-3, 6)$

11

14. $A(-1, -4)$, $B(5, 9)$, $C(1, 6)$, $D(-5, -2)$

Name _____ Date _____

15. $A(0, -4), B(2, 0), C(0, 4), D(-2, 0)$

16. $A(5, -3), B(3, 3), C(-3, 3), D(-5, -3)$

17. $A(4, -1), B(5, 4), C(0, 5), D(-1, 0)$

11

18. $A(0, -1), B(3, 5), C(1, 6), D(-2, 0)$