

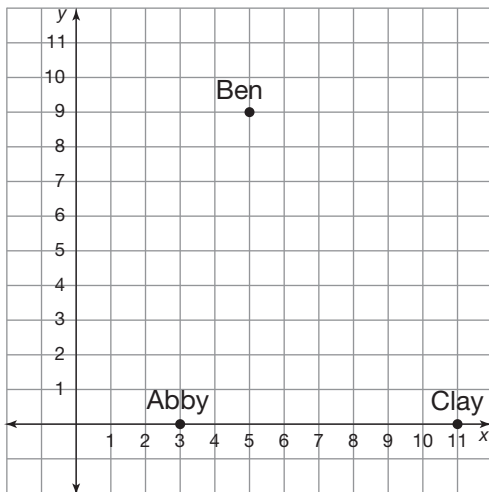
Assignment

Assignment for Lesson 11.1

Name _____ Date _____

Meeting Friends The Distance Formula

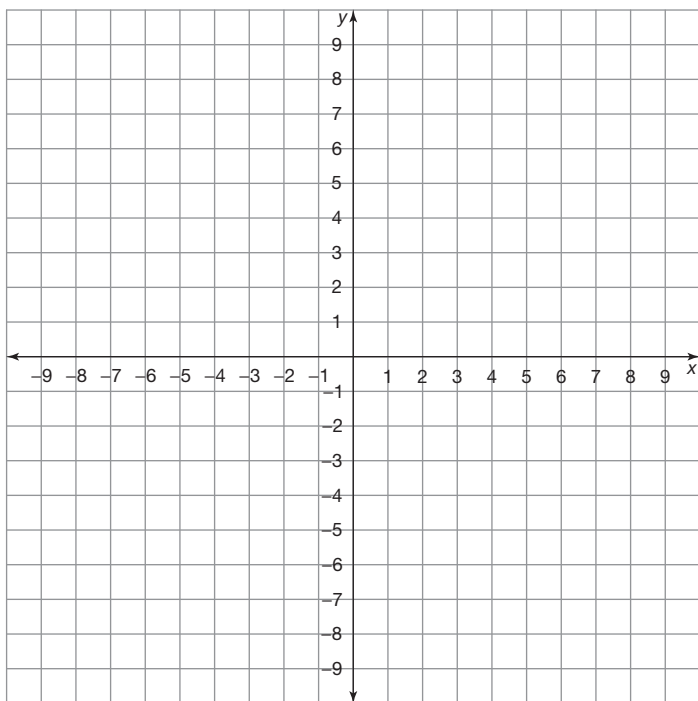
Ben is playing soccer with his friends Abby and Clay. Use the graph below to answer Questions 1 through 4.



1. What is the location on the grid of each player?
2. How far does Abby have to kick the ball to Clay if each interval is measured in meters? Use a complete sentence to explain how you found your answer.
3. How far does Ben have to kick the ball to Abby? Use a complete sentence to explain how you found your answer.

4. How far does Ben have to kick the ball to Clay? Use a complete sentence to explain how you found your answer.

5. Use the grid below to graph and connect each given pair of points. Beside each pair of points, write the distance between them.



a. $(-8, 3)$ and $(-8, 9)$ Distance: _____

b. $(-6, 8)$ and $(-1, 8)$ Distance: _____

c. $(8, -7)$ and $(-4, -7)$ Distance: _____

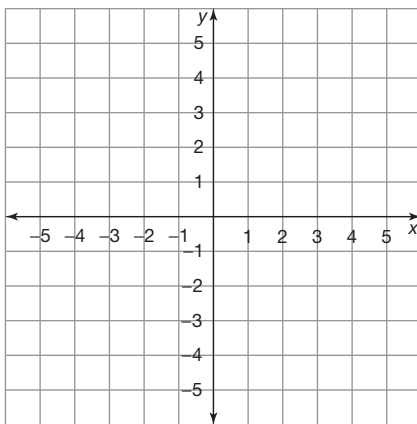
d. $(8, 8)$ and $(8, -2)$ Distance: _____

6. Use a complete sentence to describe the method that you used to find the distance between each pair of points in Question 5.

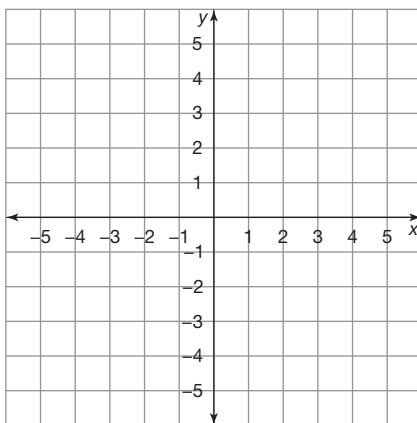
7. In Question 5, suppose that you were only given the coordinates of the points and did not graph them. Use a complete sentence to describe the method that you would use to find the distance between each pair of points.

8. Use the grid below to graph and connect the given set of three points. Then, find the distances between the points.

a. $(4, 1)$, $(2, 1)$, and $(4, 4)$



b. $(1, -4)$, $(1, 1)$, and $(-2, -4)$



9. Use a complete sentence to describe the method that you used to find the distances between the points.

10. Find the distance between each pair of points.

a. $(-37, -100)$ and $(14, 0)$

Distance: _____

b. $(3, 9)$ and $(4, 10)$

Distance: _____

c. $(-10, -7)$ and $(13, 17)$

Distance: _____

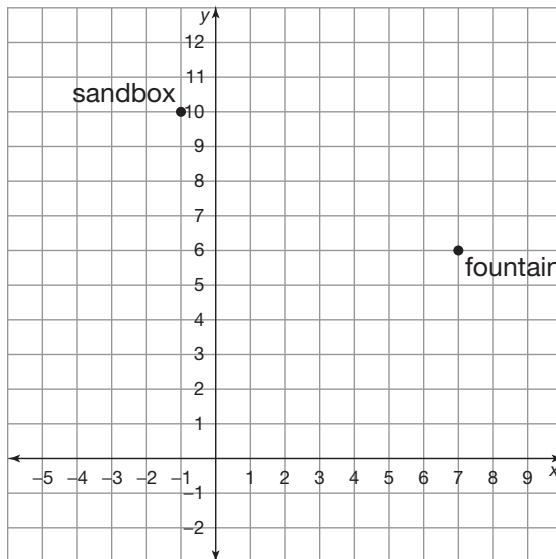
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Assignment for Lesson 11.2

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Treasure Hunt The Midpoint Formula

While playing in the sandbox, you see your friend at the water fountain. Use the graph below to answer Questions 1 through 3.



1. What are the coordinates of the sandbox and fountain?
2. Find the distance between the point representing the sandbox and the point representing the fountain. Each grid square represents a square that is one meter long and 1 meter wide. Show all your work and use complete sentences in your answer.

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3. You decide to meet your friend halfway between the fountain and sandbox. Find the midpoint of the line segment that passes through the point representing the sandbox and the point representing the fountain. Show all your work and write your answer using a complete sentence.

Use the Midpoint Formula to find the midpoint of each line segment with the given endpoints.

4. $(-2, 5)$ and $(4, 1)$

5. $(4, 3)$ and $(-2, -5)$

6. $(-3, -4)$ and $(3, -6)$

7. If you know the midpoint of a line segment is $(2, 1)$, and one endpoint is $(3, -2)$, how can you find the other endpoint?

8. Find the midpoint of the line segment with endpoints $(-3, 8)$ and $(4, 1)$.

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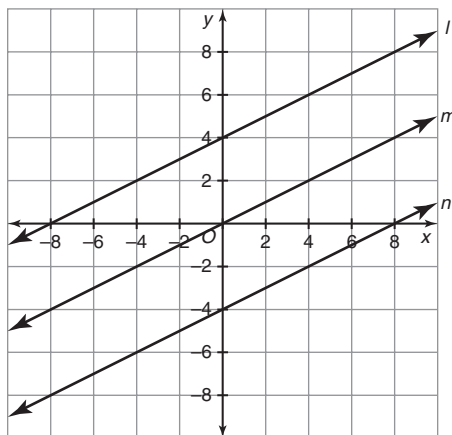
9. Use complete sentences to explain how you can prove that your answer in Question 8 is the midpoint.

Assignment

Name _____ Date _____

Parking Lot Design Parallel and Perpendicular Lines in the Coordinate Plane

The graphs of three lines are shown on the grid below. Use this information to answer Questions 1 through 4.

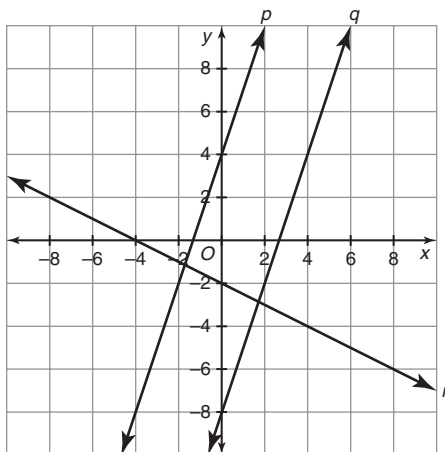


1. What is the slope of each line?
 - a. Line *l*:
 - b. Line *m*:
 - c. Line *n*:
2. What is the y-intercept of each line?
 - a. Line *l*:
 - b. Line *m*:
 - c. Line *n*:
3. Write the equation of each line in slope-intercept form.
 - a. Line *l*:
 - b. Line *m*:
 - c. Line *n*:

-
4. a. Explain what the slopes and y -intercepts of lines l , m , and n tell you about the relationship between the lines.
5. Write an equation in slope-intercept form for a line that is parallel to the line given by $y = 2x - 6$ and that has each of the following characteristics.
- a. 2 units above the given line
 - b. 8 units below the given line
 - c. passes through the point $(0, 8)$
 - d. passes through the point $(6, 0)$
6. Without graphing the lines, determine whether each pair of lines given by the equations are parallel. Show all your work.
- a. $3x - y = 4$ and $2y - 6x = 12$

b. $2y = -8 + 10$ and $4x - y = -5$

The graphs of three lines are shown on the grid below. Use this information to answer Questions 7 through 10.



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7. What is the slope of each line?
 - a. Line *p*:
 - b. Line *q*:
 - c. Line *r*:

8. What is the y-intercept of each line?
 - a. Line *p*:
 - b. Line *q*:
 - c. Line *r*:

9. Write the equation of each line in slope–intercept form.

a. Line p :

b. Line q :

c. Line r :

10. a. Explain what the slopes and y –intercepts of lines p , q , and r tell you about the relationship between the lines.

11. Write an equation in slope-intercept form for the line that is perpendicular to the line given by each equation and that passes through the given point.

a. $y = 3x + 4$; point $(2, 0)$

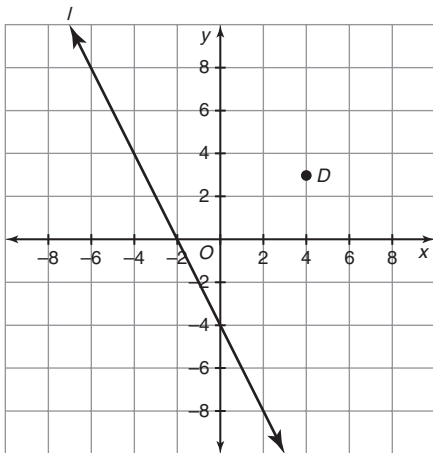
b. $y = -x - 6$; point $(3, 3)$

12. Write equations for a horizontal line and a vertical line that pass through the point $(-3, 5)$.

13. Write an equation for the line that is perpendicular to the line given by $y = -2$ and that passes through the point $(3, 4)$.

14. Write an equation for the line that is perpendicular to the line given by $x = 20$ and that passes through the point $(3, 4)$.

15. The equation of line l on the grid below is $y = -2x - 4$. Point D is at $(4, 3)$.



- a. Draw the shortest line segment possible between point D and line l on the grid above. Label the point where the segment and line l intersect point c .
- b. Write an equation for the line that contains \overline{CD} .

- c. Calculate the point of intersection of \overline{CD} and line l .

d. Calculate the distance from point D to line l .

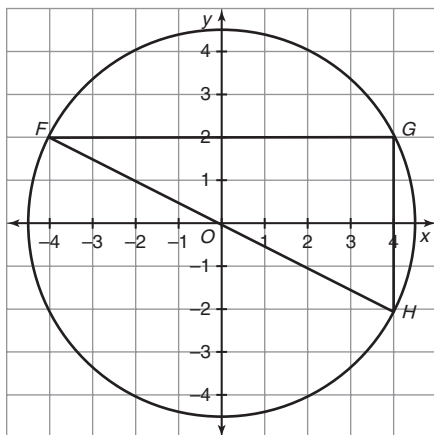
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Assignment for Lesson 11.4

Name _____ Date _____

Building a Hedge Triangles in the Coordinate Plane

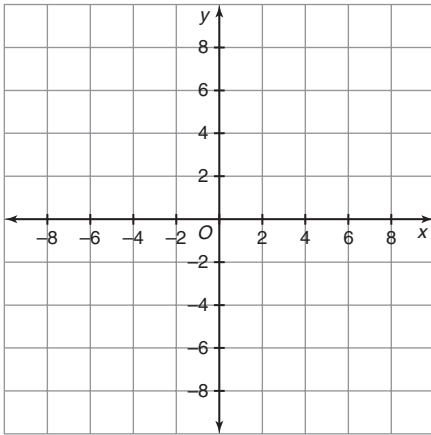
Triangle FGH has vertices at $F(-4, 2)$, $G(4, 2)$, and $H(4, -2)$. Triangle FGH is inscribed in circle O .



1. Find the slope of each side of triangle FGH .
 - a. Slope of \overline{FG} :
 - b. Slope of \overline{GH} :
 - c. Slope of \overline{FH} :
2. Classify triangle FGH by its angles.

Triangle ABC has vertices at $A(-2, 8)$, $B(-8, -6)$, and $C(4, -6)$.

3. Graph triangle ABC on the grid below.

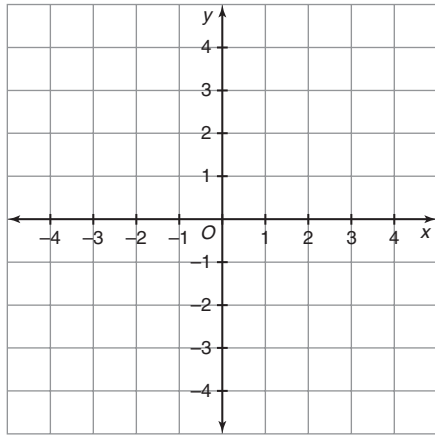


4. a. Classify triangle ABC by its side lengths.

- b. Verify the classification algebraically.

Triangle PQR has vertices at $P(-1, 1)$, $Q(4, -2)$, and $H(-4, -2)$.

5. Graph triangle PQR on the grid below.



6. a. Classify triangle PQR by its side lengths.

- b. Verify the classification algebraically.

7. Use algebra to locate the centroid of triangle FGH from Question 1.

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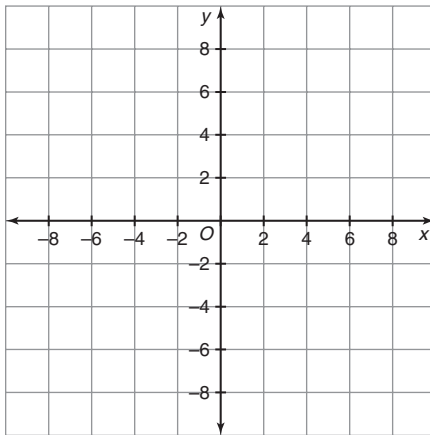
8. Use algebra to locate the circumcenter of triangle FGH from Question 1.

Assignment

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Planning a Subdivision Quadrilaterals in the Coordinate Plane

1. Quadrilateral $ABCD$ has vertices $A(-1, 6)$, $B(3, 2)$, $C(-1, -2)$, and $D(-5, 2)$.
 - a. Graph quadrilateral $ABCD$.

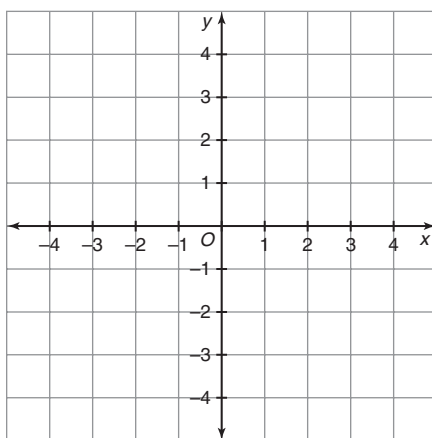


- b. Classify quadrilateral $ABCD$ in as many ways as possible.

c. Prove your classification using algebra.

2. Quadrilateral $EFGH$ has vertices $E(-2, -1)$, $F(-1, 2)$, $G(5, 0)$, and $H(4, -3)$.

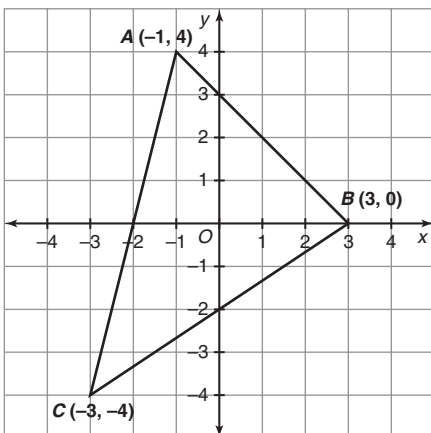
a. Graph quadrilateral $EFGH$.



b. Classify quadrilateral $EFGH$ in as many ways as possible.

c. Prove your classification using algebra.

3. Triangle ABC has vertices $A(-1, 4)$, $B(3, 0)$, and $C(-3, -4)$, as shown on the grid below.



- a. Determine and label: point D , the midpoint of \overline{AB} :
- b. Determine and label: point E , the midpoint of \overline{BC} :
- c. Determine and label: point F , the midpoint of \overline{AC} :
- d. Draw the midsegments of triangle ABC . Find the length of each side and midsegment of triangle ABC .
- e. Classify quadrilateral $DECF$, formed by midsegments and segments of the triangles sides, in as many ways as possible.
- f. Prove your classification using algebra.

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g. Classify quadrilaterals $ADEF$ and $DBEF$. Explain your classification.

4. Calculate the area of quadrilateral $DECF$ from Question 3.

