

Geometry  
Module 7.2

Name \_\_\_\_\_  
period      1      2      3      5      6

NOTE: the notation "f(x)" means the "y-value of a function for a given x-value." For example, given  $f(x) = 3x + 5$ ...

If  $x = 1$ , then  $y = ?$

$$f(1) = 3(1) + 5$$

$$f(1) = 8$$

$\therefore (1, 8)$  is a point on this line.

If  $x = -3$ , then  $y = ?$

$$f(-3) = 3(-3) + 5$$

$$f(-3) = -4$$

$\therefore (-3, -4)$  is a point on this line.

If  $x = 100$ , then  $y = ?$

$$f(100) = 3(100) + 5$$

$$f(100) = 305$$

$\therefore (100, 305)$  is a point on this line.

**Topic: Graphing lines.**

**The graph at the right is of the line  $f(x) = x$ .**

1a. On the same grid, graph a parallel line that is 3 units above it.

b. Write the equation of the new line. \_\_\_\_\_

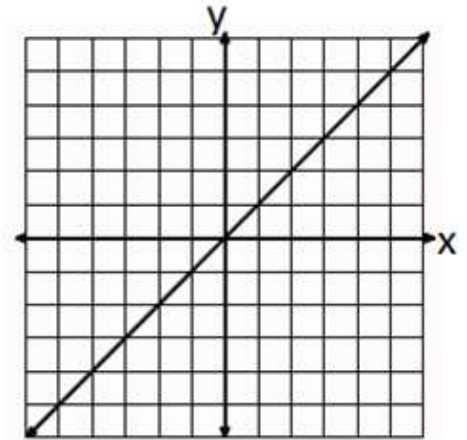
c. Write the y-intercept of the new line as an ordered pair.

d. Write the x-intercept of the new line as an ordered pair.

e. Write the equation of the new line in point-slope form using the y-intercept.

f. Write the equation of the new line in point-slope form using the x-intercept.

g. Explain in what way the equations are the same and in what way they are different.



**The graph at the right is of the line  $f(x) = -2x$ .**

2a. On the same grid, graph a parallel line that is 4 units below it.

b. Write the equation of the new line. \_\_\_\_\_

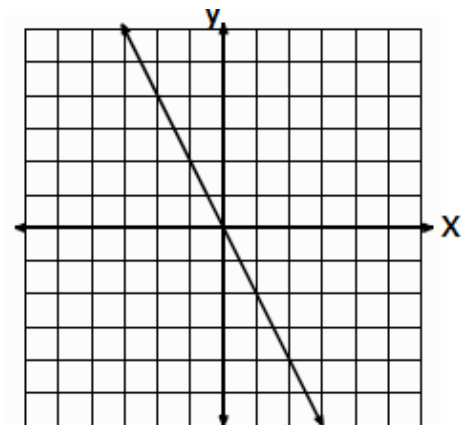
c. Write the y-intercept of the new line as an ordered pair.

d. Write the x-intercept as an ordered pair.

e. Write the equation of the new line in point-slope form using the y-intercept

f. Write the equation of the new line in point-slope form using the x-intercept.

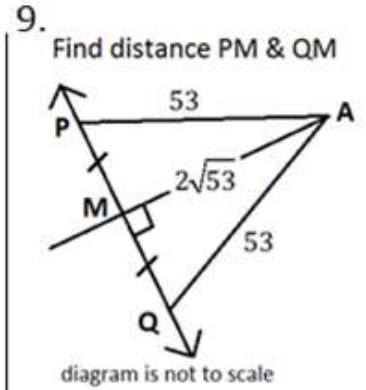
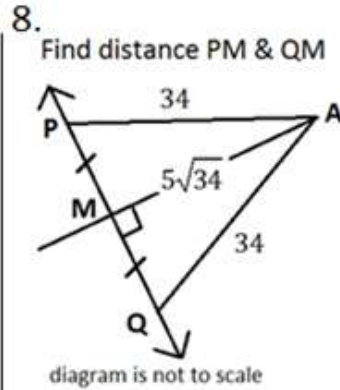
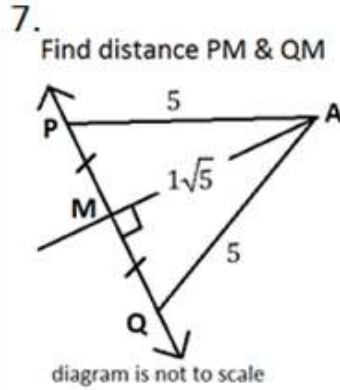
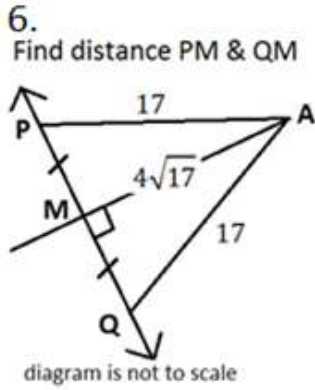
g. Explain in what way the equations are the same and in what way they are different.



For questions 6-9, the diagrams are not drawn to scale. In each diagram, M is the point that locates the shortest distance Am from point A to line PQ... so A lies on a perpendicular to line PQ. M is also the midpoint of segment PQ.

Find the distance point P and point Q are from M given the distances for AM, AP and AQ by doing the following:

- Write a Pythagorean Equation:  $a^2 + b^2 = c^2$  substituting the known values marked on the diagram.
- Solve the equation for the unknown variable.



Simplify the square root of the sum of squares by “undistributing” the largest common factor.

10.  $\sqrt{300^2 + 200^2}$

11.  $\sqrt{125^2 + 75^2}$

12.  $\sqrt{32^2 + 80^2}$

Geometry  
Module 7.3

Name \_\_\_\_\_  
period      1      2      3      5      6

Topic: Verifying and proving geometric relationships using coordinate geometry concepts of distance and slope.

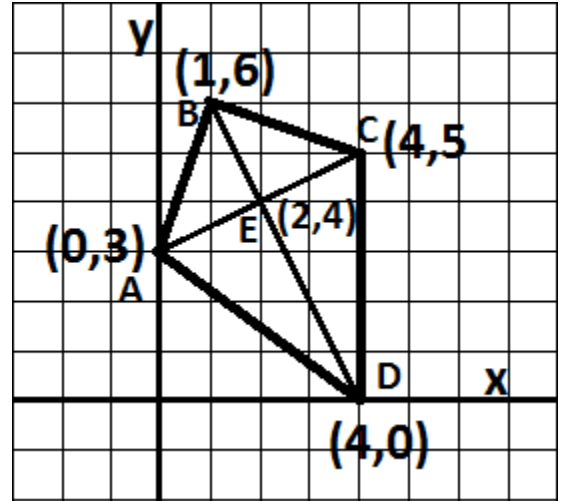
1 The quadrilateral shown is a **KITE**

The properties of a kite include:

- Two pairs of consecutive sides are congruent
- Diagonals are perpendicular
- One diagonal bisects the other

Fill in the blank with the appropriate symbol:  $\cong$   $\perp$  to show the relationship between the two objects then use coordinate geometry to prove each of the properties above.

$AB$  \_\_\_\_\_  $CB$  Proof:



$AD$  \_\_\_\_\_  $CD$  Proof:

$AC$  \_\_\_\_\_  $BD$  Proof:

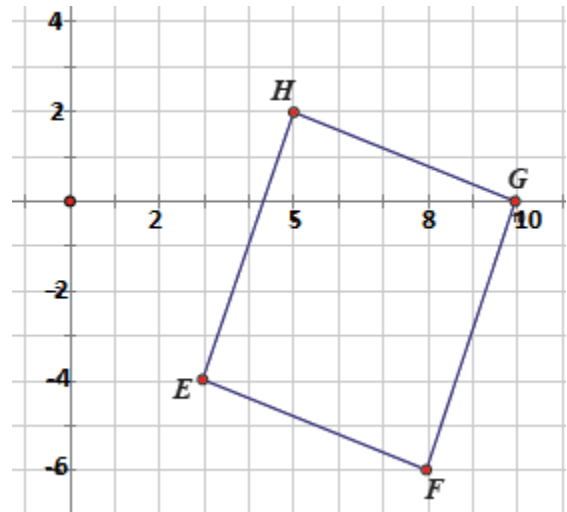
$AE$  \_\_\_\_\_  $CE$  Proof:

2. Explain how you know EFGH is or is not a parallelogram.

Provide convincing evidence.

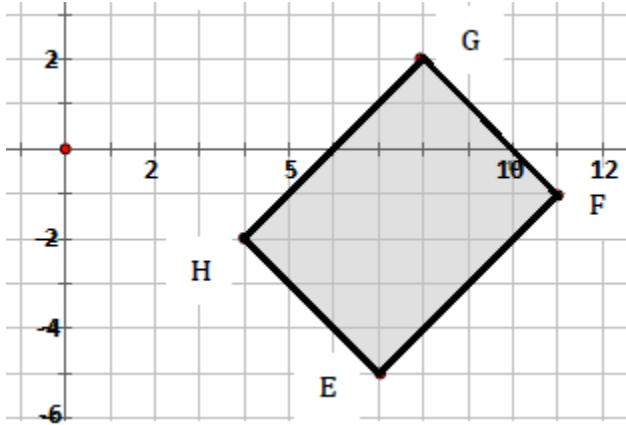
A. List the properties of a parallelogram that distinguish it from other quadrilaterals.

B. Prove these properties are true for the graphed shape.



In this task you need to use all the things you know about quadrilaterals, distance, and slope to prove that the shapes are parallelograms, rectangles, rhombi or squares. Be systematic and be sure you give all the evidence.

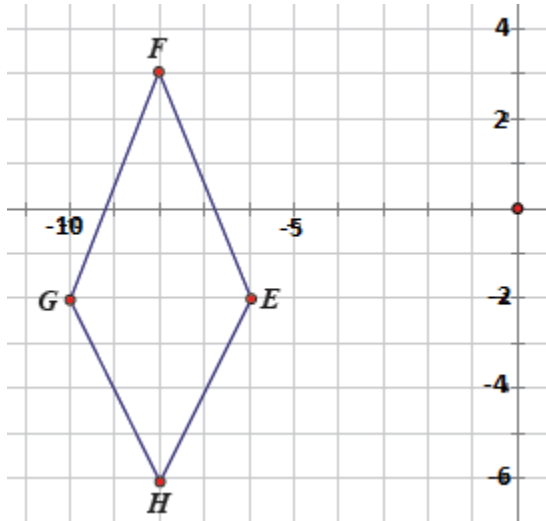
3. Explain how you know EFGH is or is not a rectangle  
Provide convincing evidence.



- A. List the properties of a rectangle that distinguish a rectangle from other quadrilaterals.

- B. Prove these properties are true for graphed shape.

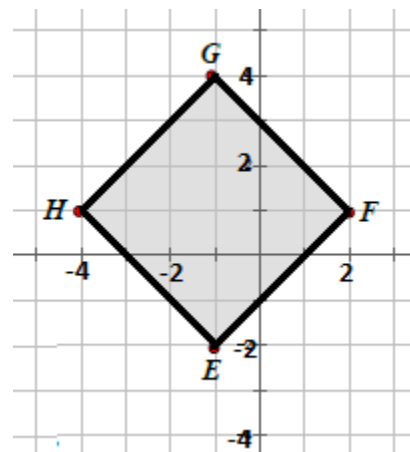
4. Explain how you know EFGH is or is not a rhombus. Provide convincing evidence.



- A. List the properties of a rectangle that distinguish a rhombus from other quadrilaterals.

- B. Prove these properties are true for graphed shape.

5. Explain how you know EFGH is or is not a square.  
Provide convincing evidence.



- A. List the properties of a rectangle that distinguish a square from other quadrilaterals.

- B. Prove these properties are true for graphed shape.

Find the perimeter of each shape:

- Perimeter is the sum of the lengths of the sides of the polygon.
- Perimeter of a circle is called circumference:  $C = 2\pi r$

State the perimeter as a sum of simplified square roots, then use your calculator to state to the nearest thousandth (three decimal places).

