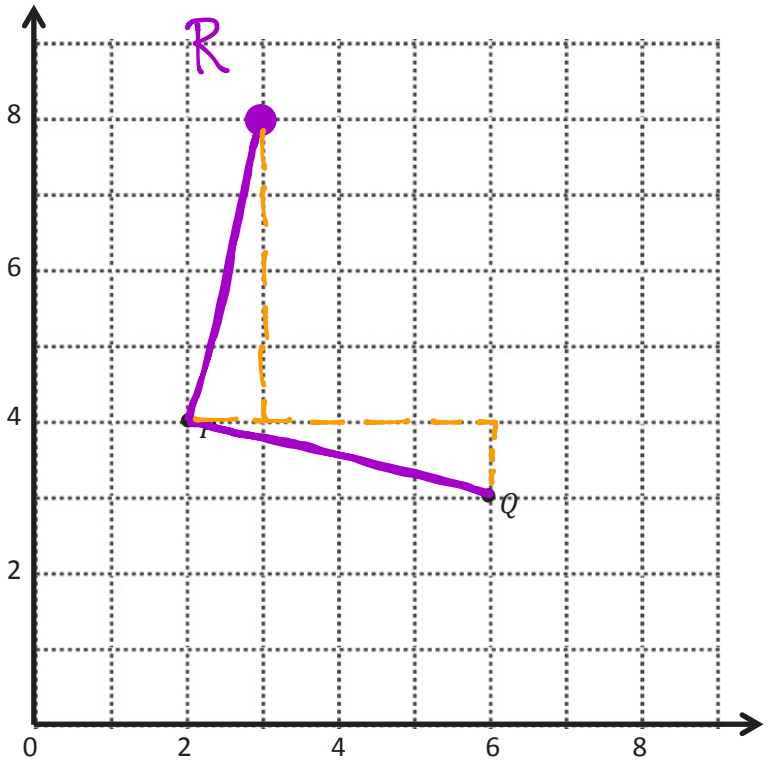
Name _____ Date _____

1. Use the coordinate plane below to complete the following tasks.

   a. Draw $\overline{PQ}$.
   b. Plot point R (3, 8).
   c. Draw $\overline{PR}$.
   d. Explain how you know $\angle RPQ$ is a right angle without measuring it.

Since the two acute angles of the reference triangles are adjacent, we know it is 90°.



   e. Compare the coordinates of points P and Q. What is the difference of the x-coordinates? The y-coordinates?

x diff = 4
y diff = 1

   f. Compare the coordinates of points P and R. What is the difference of the x-coordinates? The y-coordinates?

x diff = 1
y diff = 4

   g. What is the relationship of the differences you found in (e) and (f) to the triangles of which these two segments are a part?

The difference of the x coordinates of P and Q are the same as the difference of the y coordinates of P and R.

The difference of the y coordinates of P and Q are the same as the difference of the x coordinates of P and R.

The differences switched.

2. Use the coordinate plane below to complete the following tasks.

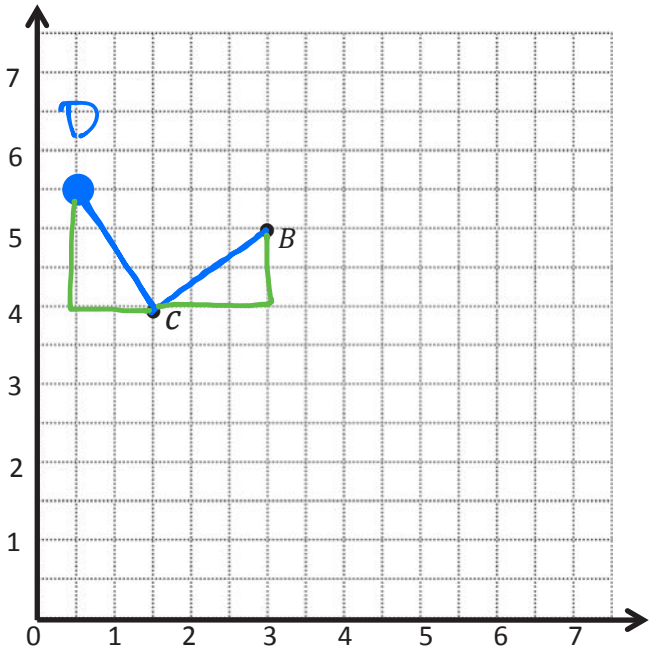
a. Draw $\overline{CB}$.

b. Plot point D $(\frac{1}{2}, 5\frac{1}{2})$.

c. Draw $\overline{CD}$.

d. Explain how you know $\angle DCB$ is a right angle without measuring it.

We know the two acute angles add up to 90°, so ∠DCB must also be 90°.



e. Compare the coordinates of points C and B. What is the difference of the x-coordinates? The y-coordinates?

x diff = $1\frac{1}{2}$
y diff = 1

f. Compare the coordinates of points C and D. What is the difference of the x-coordinates? The y-coordinates?

x diff = 1
y diff = $1\frac{1}{2}$

g. What is the relationship of the differences you found in (e) and (f) to the triangles of which these two segments are a part?

the differences of the x coordinates and the y coordinates flipped.

3. $\overleftrightarrow{ST}$ contains the following points. S: (2, 3) T: (9, 6)

Give the coordinates of a pair of points, U and V, such that $\overleftrightarrow{ST} \perp \overleftrightarrow{UV}$.

U: (6, 2) V: (3, 9)

x diff = 7
y diff = 3

Answers will vary

x diff = 3
y diff = 7