Name: _____

Classifying Quadrilaterals on the Coordinate Plane

Parallelogram Facts

- All sides are parallel to their opposite sides.
- All sides are congruent to their opposite sides.
  (If 1 pair of opposite sides is both parallel & congruent, then the other pair will have to be, too)
- The diagonals bisect each other (they're cut in half).
- The opposite angles are congruent.
- The consecutive (next to each other) angles are supplementary (add to equal 180°).

Rectangle Facts

All of the parallelogram facts apply!

- All sides are perpendicular (90°).
- The diagonals are congruent to each other.

Rhombus Facts

All of the parallelogram facts apply!

- All of the sides are congruent.
- The diagonals are perpendicular (90°).

Square:

All of parallelogram facts apply!
All of the rectangle facts apply!
All of the rhombus facts apply!

Trapezoid Facts

- ONLY 1 pair of opposite sides are parallel.
- The parallel sides CANNOT be congruent.
- (The sides that are not parallel may or may not be congruent.)

Right Trapezoid Facts

All of the trapezoid facts apply!

- Exactly 2 of the angles are 90°.
- The 90° angles are consecutive.

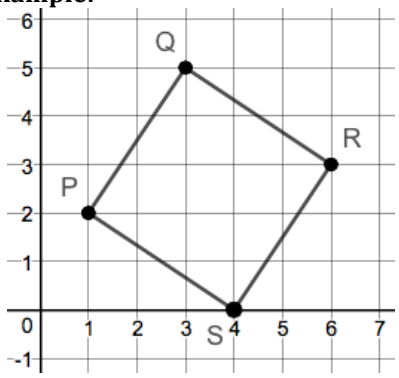
Isosceles Trapezoid Facts

All of the trapezoid facts apply!

- The non-parallel sides are congruent.
- 2 sets of consecutive angles are congruent.
- The diagonals are congruent.

Determine the distance and slope of each side of the quadrilateral. Use that information and the facts above to classify the quadrilateral.

Example:



All sides are parallel to their opposites!
Sides are perpendicular (90°)!
All sides are the same!

$P(1,2), Q(3,5), R(6,3), S(4,0)$

$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ & $Slope = \frac{y_2 - y_1}{x_2 - x_1}$

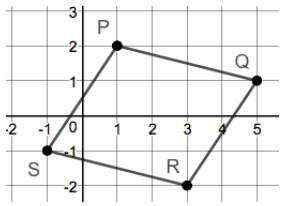
	P to Q	Q to R	R to S	S to P
$x_2 - x_1$	3 – 1 = 2	6 – 3 = 3	4 – 6 = -2	1 – 4 = -3
$y_2 - y_1$	5 – 2 = 3	3 – 5 = -2	0 – 3 = -3	2 – 0 = 2
Distance	$\sqrt{(2)^2 + (3)^2}$ $\sqrt{13}$	$\sqrt{(3)^2 + (-2)^2}$ $\sqrt{13}$	$\sqrt{(-2)^2 + (-3)^2}$ $\sqrt{13}$	$\sqrt{(-3)^2 + (2)^2}$ $\sqrt{13}$
Slope	$\frac{3}{2}$	$-\frac{2}{3}$	$\frac{-3}{-2} = \frac{3}{2}$	$-\frac{2}{3}$

This figure is a *(circle all that apply):*

PARALLELOGRAM RECTANGLE RHOMBUS SQUARE

TRAPEZOID ISOSCELES TRAPEZOID RIGHT TRAPEZOID

1. This figure is a *(circle all that apply):*

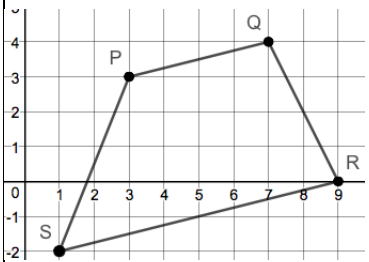


PARALLELOGRAM RECTANGLE RHOMBUS SQUARE

TRAPEZOID ISOSCELES TRAPEZOID RIGHT TRAPEZOID

	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

2. This figure is a *(circle all that apply):*

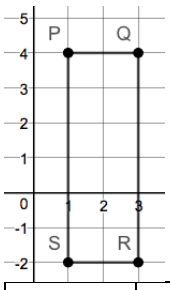


PARALLELOGRAM RECTANGLE RHOMBUS SQUARE

TRAPEZOID ISOSCELES TRAPEZOID RIGHT TRAPEZOID

	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

3. This figure is a *(circle all that apply):*

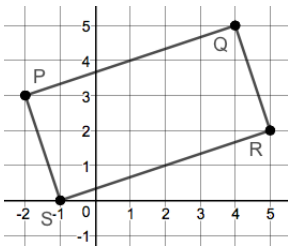


PARALLELOGRAM
RECTANGLE RHOMBUS
SQUARE

TRAPEZOID
ISOSCELES TRAPEZOID
RIGHT TRAPEZOID

	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

4. This figure is a *(circle all that apply):*

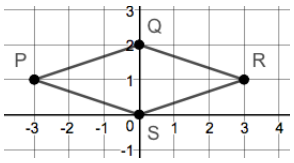


PARALLELOGRAM
RECTANGLE
RHOMBUS SQUARE

TRAPEZOID
ISOSCELES TRAPEZOID
RIGHT TRAPEZOID

	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

5. This figure is a *(circle all that apply):*



PARALLELOGRAM
RECTANGLE RHOMBUS
SQUARE

TRAPEZOID
ISOSCELES TRAPEZOID
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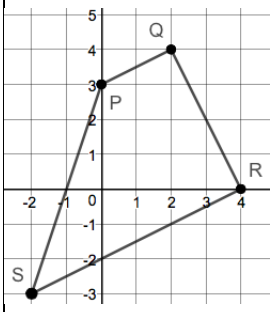
	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

6. This figure is a *(circle all that apply):*

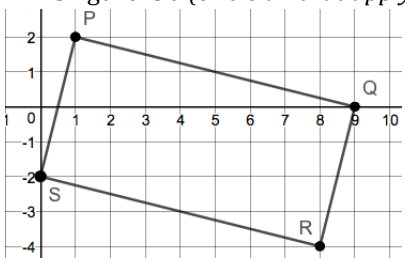


PARALLELOGRAM
RECTANGLE RHOMBUS
SQUARE

TRAPEZOID
ISOSCELES TRAPEZOID
RIGHT TRAPEZOID

	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

7. This figure is a *(circle all that apply):*



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TRAPEZOID
ISOSCELES
TRAPEZOID
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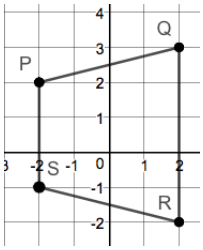
	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
$y_2 - y_1$				
Distance				
Slope				

8. This figure is a *(circle all that apply):*



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TRAPEZOID
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	P to Q	Q to R	R to S	S to P
$x_2 - x_1$				
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Distance				
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