

Section 8.6: Identify Special Quadrilaterals

Essential Question:

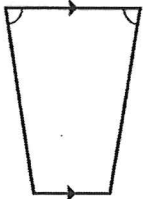
How can you identify special quadrilaterals?

VOCABULARY: *Hierarchy*

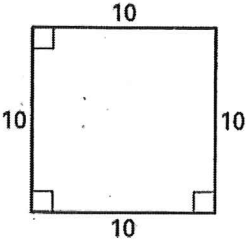
A hierarchy is an arrangement of things according to relative features.

Property	□	Rectangle	Rhombus	Square	Kite	Trapezoid
Both pairs of opposite sides are congruent.	X	X	X	X		
Both pairs of opposite angles are congruent.	X	X	X	X		
Exactly one pair of opposite sides are congruent.						If isosceles
Exactly one pair of opposite sides are parallel.						X
Exactly one pair of opposite angles are congruent.					X	
Consecutive angles are supplementary.	X	X	X	X		

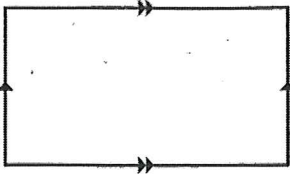
A1. Give the most specific name for the quadrilateral and your reason.

a.  Isosceles Trapezoid

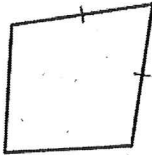
1 pair of // sides
Base angles \cong \therefore Isos.

b.  Square

All sides \cong
All \angle 's = 90°

c.  Parallelogram

2 pairs of // sides

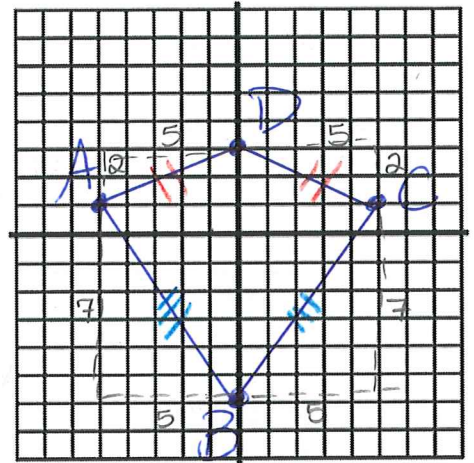
d.  Quadrilateral

Not enough info to classify any specific Quad

A2. Identify all the types of quadrilateral $ABCD$ could be named.

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

side	Slope = $\frac{\text{rise}}{\text{run}}$	length
AB	$m = -\frac{7}{5}$	$\sqrt{7^2 + 5^2} = \sqrt{74}$
BD	$m = \frac{7}{5}$	$\sqrt{7^2 + 5^2} = \sqrt{74}$
AD	$m = \frac{2}{5}$	$\sqrt{2^2 + 5^2} = \sqrt{29}$
CD	$m = -\frac{2}{5}$	$\sqrt{2^2 + 5^2} = \sqrt{29}$



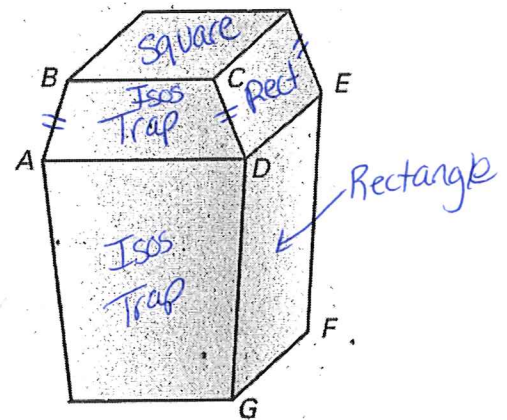
2 pairs of consecutive \cong sides \rightarrow

Kite

A3. How many of each type of quadrilaterals are in the figure assuming they are all trapezoids, rectangles, or squares?

{ 1 square
 4 Rectangles
 4 Isos. Trap

 9 sides



Summary 8.6:

To identify special quadrilaterals look for:

- Congruent sides
- \parallel sides
- Congruent angles
- Right angles
- Consecutive, supplementary \angle 's
- Other characteristics by definition or Theorem