

Unit 11

Geometry

SOL 7.6




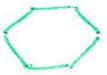




- Students will use proportions to determine if two quadrilaterals or two triangles are similar, congruent, or neither

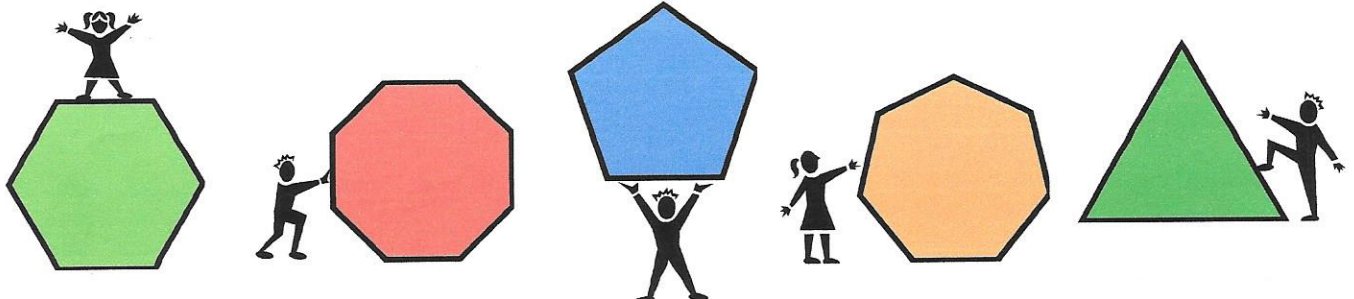
SOL 7.7

- Students will be able to compare and contrast quadrilaterals based on their properties

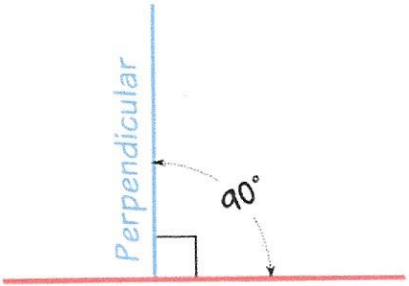
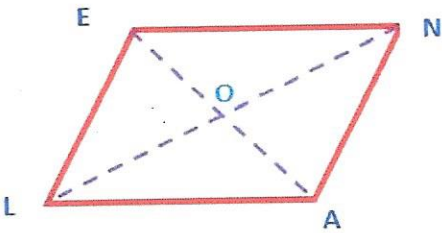
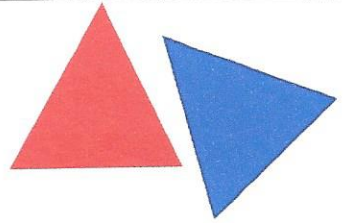
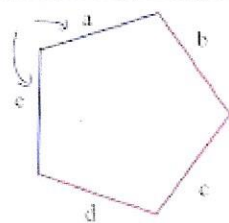
POLYGONS

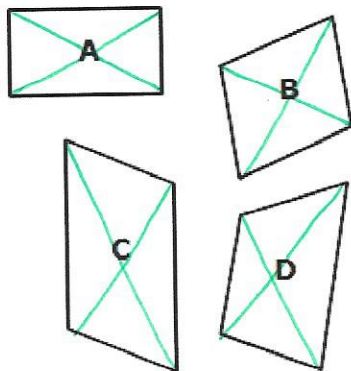
Definition: a closed plane geometric figure composed of at least 3 line segments that do not cross or curve.

Name of Polygon	Prefix -	# of Sides	# of Angles	Example
Triangle	Tri-	3	3	
Quadrilateral	Quad-	4	4	
Pentagon	Pent-	5	5	
Hexagon	Hex-	6	6	
Heptagon	Hept-	7	7	
Octagon	Oct-	8	8	
Nonagon	Non-	9	9	
Decagon	Deca-	10	10	



Quadrilateral Properties

Vocabulary	Definition	Example
Perpendicular	To intersect at a 90° right angle	
Bisector	To cut in half at an intersection	
Congruent	Two figures that are the same shape and size	
Adjacent	Next to each other	

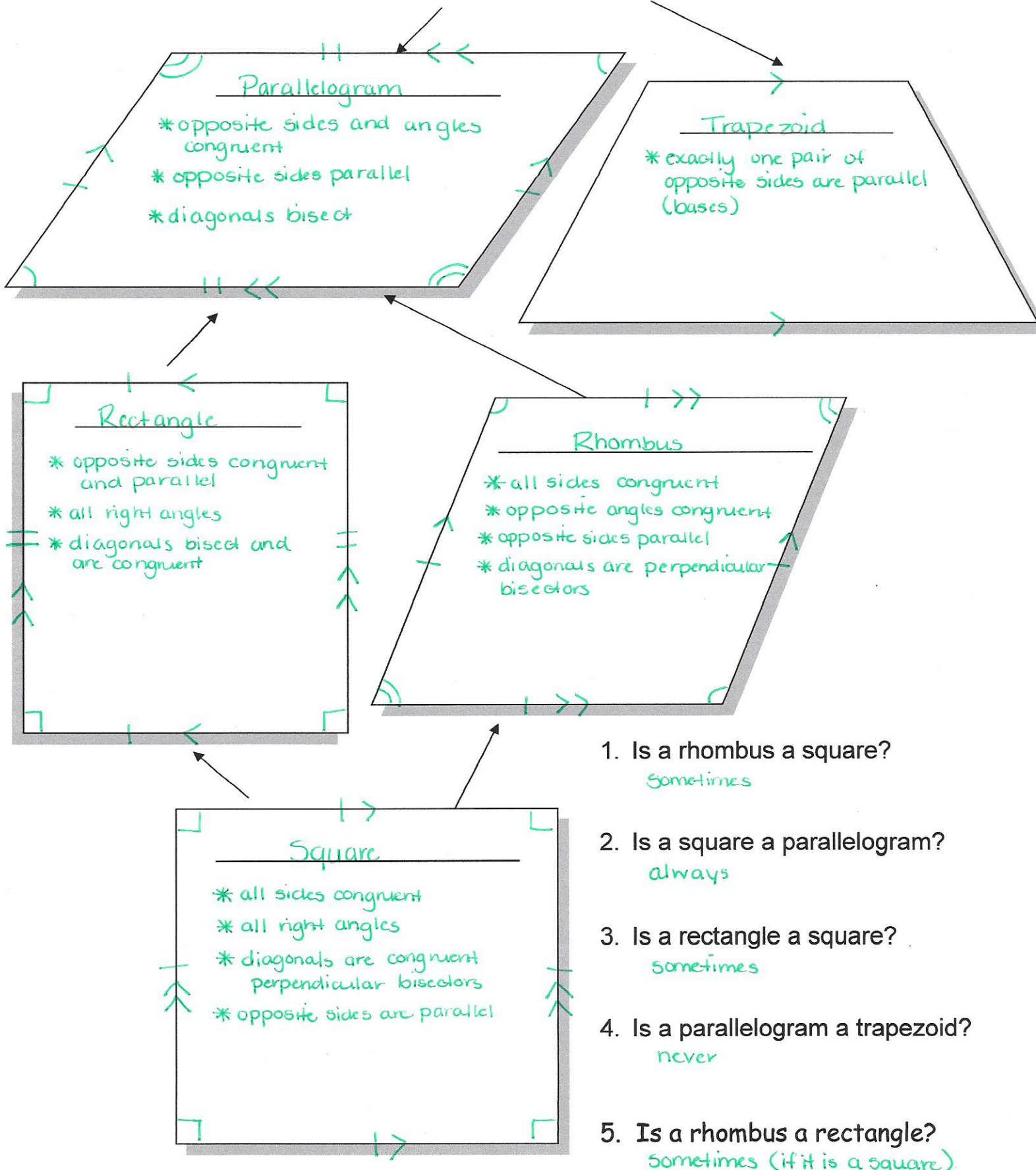


Diagonals are Congruent

A

Which polygon can be placed in the box with the required characteristic?

Quadrilaterals



1. Is a rhombus a square?

Sometimes

2. Is a square a parallelogram?

always

3. Is a rectangle a square?

Sometimes

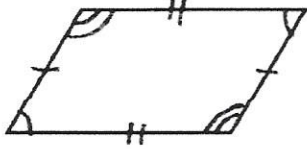
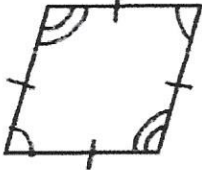
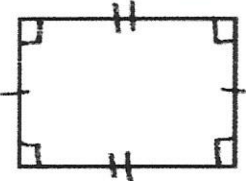
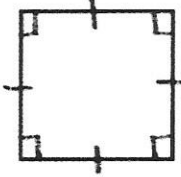
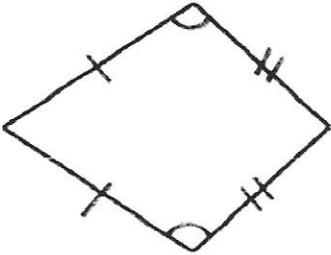
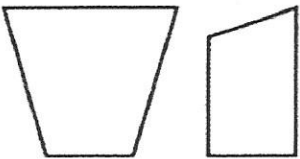
4. Is a parallelogram a trapezoid?

never

5. Is a rhombus a rectangle?

Sometimes (if it is a square)

Quadrilateral Properties

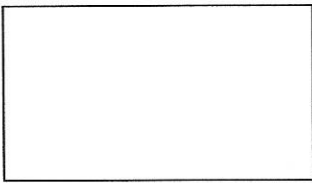
Quadrilateral	Example	Properties
Parallelogram		<ul style="list-style-type: none"> • Opposite sides and angles are congruent • Opposite sides are parallel • Diagonals bisect each other
Rhombus		<ul style="list-style-type: none"> • All sides are congruent • Opposite angles are congruent • Opposite sides are parallel • Diagonals are perpendicular bisectors
Rectangle		<ul style="list-style-type: none"> • It has the properties of a parallelogram • All angles are right angles • Diagonals are congruent
Square		<ul style="list-style-type: none"> • It has the properties of a rectangle • All sides are congruent • Diagonals are congruent • Diagonals are perpendicular bisectors
Kite		<ul style="list-style-type: none"> • Adjacent sides are congruent • Perpendicular diagonals • One pair of opposite angles are congruent
Trapezoid		<ul style="list-style-type: none"> • Exactly one pair of opposite sides is parallel • In an isosceles trapezoid the diagonals are congruent • The bases are parallel

Memorize the properties of your quads!

NAME EVERY QUADRILATERAL THAT DESCRIBES EACH FIGURE.

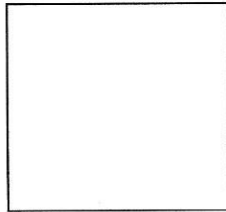
THEN, CIRCLE THE NAME THAT BEST DESCRIBES THE FIGURE.

1)



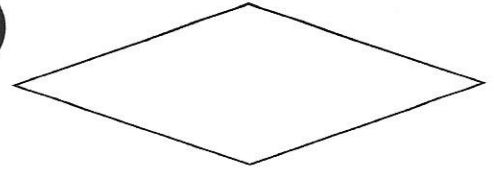
Quadrilateral
Parallelogram
* Rectangle

2)



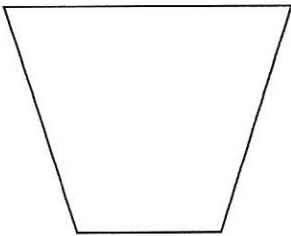
Quadrilateral
Parallelogram
Rhombus
Rectangle
* Square

3)



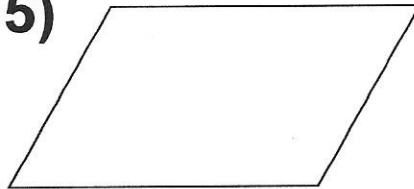
Quadrilateral
* Parallelogram

4)



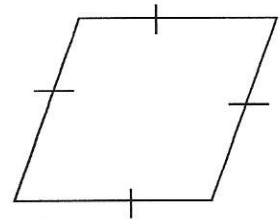
Quadrilateral
* Trapezoid

5)



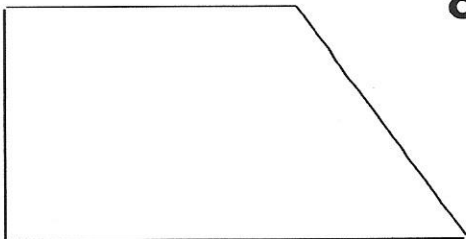
Quadrilateral
* Parallelogram

6)



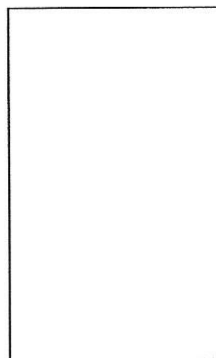
Quadrilateral
Parallelogram
* Rhombus

7)



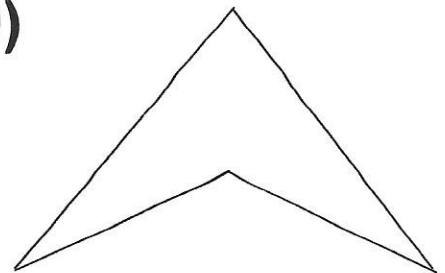
Quadrilateral
* Trapezoid

8)



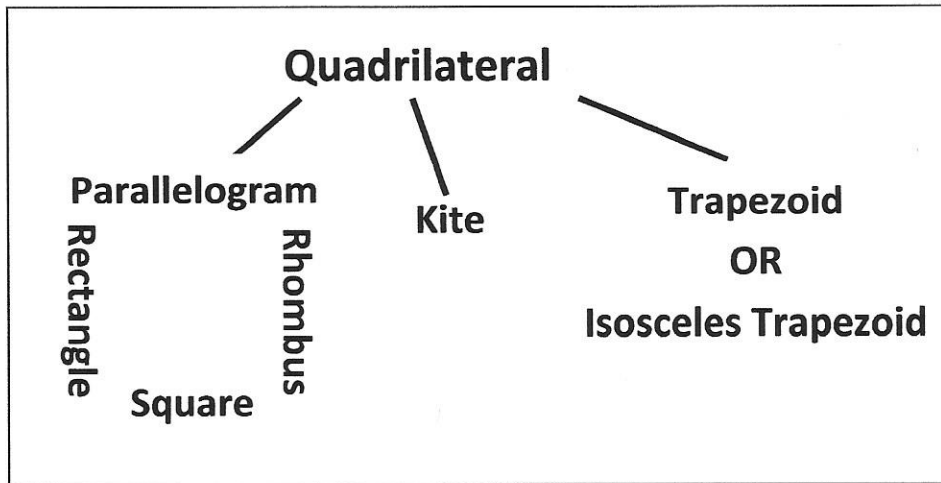
Quadrilateral
Parallelogram
* Rectangle

9)



* Quadrilateral

Always, Sometimes, or Never?



Always ↑
 Sometimes ↓
 Never ↔

Always, sometimes or never?

1) A square is a rhombus. <i>Always</i>	2) A kite is a trapezoid. <i>Never</i>	3) A parallelogram is a rectangle. <i>Sometimes</i>
4) A rectangle is a square. <i>Sometimes</i>	5) A quadrilateral is a trapezoid. <i>Sometimes</i>	6) A kite is a quadrilateral. <i>Always</i>

Use the diagram or vocabulary to answer the following.

1) What shape is a rectangle and a rhombus? <i>Square</i>	2) Which shape has diagonals that are always perpendicular bisectors? <i>Square and Rhombus</i>	3) Which shape is a parallelogram with four right angles and has congruent diagonals that bisect each other? <i>Rectangle and Square</i>
4) What parallelogram has four congruent sides whose diagonals bisect each other and intersect at four right angles? <i>Rhombus and Square</i>	5) What property do all quadrilaterals have? <i>4 sides, closed figure</i>	6) What shapes have adjacent congruent sides? <i>Square, Kite, and Rhombus</i>