Name _____ Period _____

Chapter 7 Reference Sheet

n is the number of sides of the polygon

Sum of the Interior Angles	Each Interior Angle of a Regular Polygon
$S_I = 180(n-2)$	$E_I = \frac{180(n-2)}{n}$ or $E_I = 180 - \frac{360}{n}$
Sum of the Exterior Angles	**Each Exterior Angle of a Regular Polygon**
$S_E = 360$ *the sum of the ext. angles for all polygons is 360°*	$E_E = \frac{360}{n}$

7.5 Formula

Trapezoid Midsegment Thm

$midseg = \frac{1}{2}(Base_1 + Base_2)$ *or* $2(midseg) = Base_1 + Base_2$

Number of Sides	Polygon Name
3	triangle
4	quadrilateral
5	pentagon
6	hexagon
7	heptagon
8	octagon
9	nonagon
10	decagon
12	dodecagon
n	n-gon

Regular Polygons

Sides = Sides

Angles = Angles

Polygons – A figure (shape) with sides

Quadrilaterals – A Polygons with 4 sides

Parallelogram –

- *Def. Oppo side //*
- *Oppo side ≅*
- *Oppo ∠ ≅*
- *Consecutive ∠ supplementary*
- *Diagonals bisect e.o.*

Rhombus – 4 ≅ sides Diagonals ⊥ Diagonals bisect ∠

***Square** has all properties of Rectangle and rhombus*

Rectangle – 4 ⊥ angles Diagonals ≅

Trapezoid – One pair of // sides

Isosceles Trapezoid – Legs ≅ Base angles ≅ Diagonals ≅

Kites - 2 sets of consecutive sides ≅ Diagonals ⊥ 1pair of angles ≅

7.2 – 7.5 Special Quadrilaterals

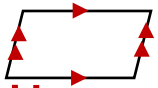
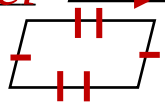
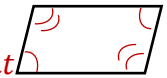
Make a checkmark to indicate which special quadrilaterals below (rectangle, rhombus, square, etc…) have each given property. If all three types (rectangle, rhombus, square) have a given property, then put a check mark under "All Parallelograms."

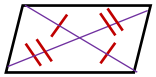
Property	**Rectangle**	**Rhombus**	**Square**	**All Parallelograms**	**Isosceles Trapezoid**	**All Trapezoids**	**Kite**	**All Quadrilaterals**
The Sides	***4***	***4***	***4***	***4***	***4***	***4***	***4***	***4***
Opposite sides are parallel	✓	✓	✓	✓				
Opposite sides are congruent	✓	✓	✓	✓				
All sides are congruent		✓	✓					
One pair of opposite sides are ≅					✓			
The Angles	***4***	***4***	***4***	***4***	***4***	***4***	***4***	***4***
Sum of the angles is 360°	✓	✓	✓	✓	✓	✓	✓	✓
Opposite angles are congruent	✓	✓	✓	✓				
All four angles are right angles	✓		✓					
One pair of opposite angles are ≅							✓	
Two pairs of base angles are ≅					✓			
The Diagonals								
Diagonals bisect each other	✓	✓	✓	✓				
Diagonals are congruent	✓		✓		✓			
Diagonals are perpendicular		✓	✓				✓	
Diagonals bisect opposite angles		✓	✓					
Only one diagonal is bisected							✓	

7.2-7.5 Properties of Parallelograms and Special Parallelograms Graphic Organizer

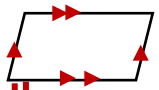
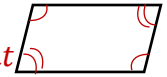
If… Parallelogram, 

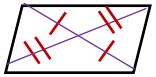
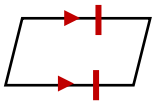
Then…

- **Def:** Opposite sides *// parallel* 
- Opposite sides *are ≅ congruent* 
- Opposite angles *are ≅ congruent* 
- Consecutive angles *are supplementary* 

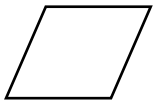
- Diagonals *bisect each other* 

If…

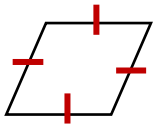
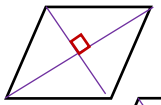
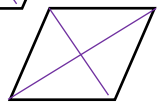
- **Def:** Opposite sides *// parallel* 
- Opposite sides *are ≅ congruent* 
- Opposite angles *are ≅ congruent* 
- Consecutive angles *are supplementary* 

- Diagonals *bisect each other* 
- One pair of opposites sides is *≅ and //* 

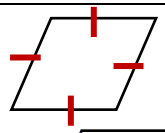
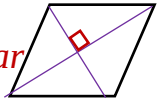
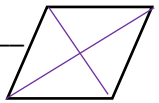
Then… Parallelogram 

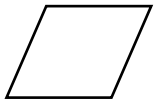
If… Rhombus, 

Then…

- **Def:** Has FOUR *≅ congruent sides* 
- Diagonals are *⊥ perpendicular* 
- Diagonals *bisect the angles* 
- AND has all the properties of a *parallelogram*

If…

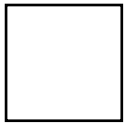
- **Def:** Has FOUR *≅ congruent sides* 
-  AND diagonals are *⊥ perpendicular* 
-  AND diagonals *bisect the angles* 

Then… Rhombus 

If… Rectangle, 

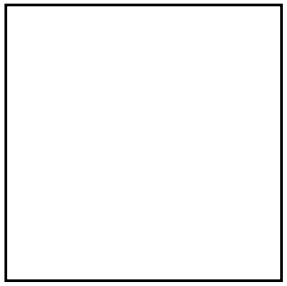
Then…

- **Def:** Has FOUR *right angles (⊥)* 
- Diagonals are *≅ congruent* 
- AND has all the properties of a *parallelogram*

If… Square, 

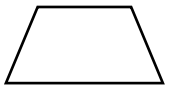
Then…

Has all the properties of a

- *parallelogram*
- *rhombus*
- and *rectanale*. 

Def: Trapezoid has one pair of *// parallel* sides.

Def: Isosceles Trapezoid – Trapezoid with *≅ congruent legs*.

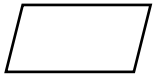
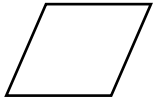
- If isosceles trapezoid, then both pairs of base angles are *≅ congruent* 
- If trapezoid with one pair of base angles congruent, then it is *isosceles* 
- Isosceles Trapezoid IFF diagonals *are ≅ congruent* 

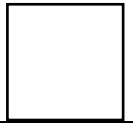
If…

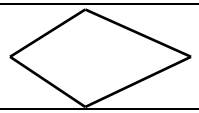
- **Def:** Has FOUR *right angles (⊥)* 
- ▱ AND has ONE *right angle (⊥)* 
- ▱ AND diagonals are *≅ congruent* 

Then… Rectangle 

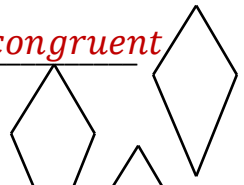
If…

- It is a *parallelogram* 
- AND It is a *rhombus* 
- AND It is a *rectanale* 

Then… Square 

If… Kite, 

Then…

- **Def:** Has two pairs consecutive sides *≅ congruent* 
- Diagonals are *⊥ perpendicular*
- One pair of opposite angles *≅ congruent*