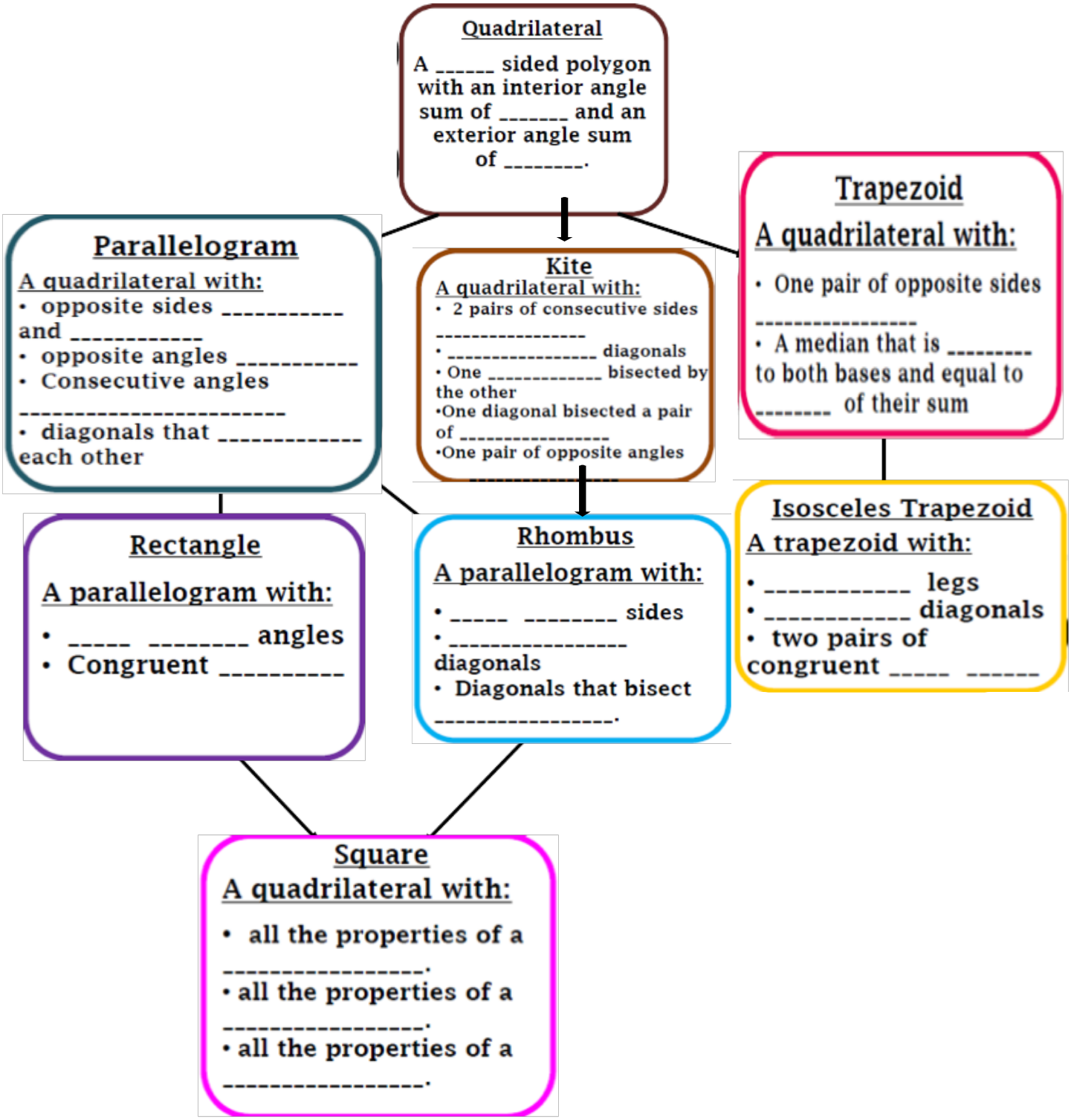
BECA / Huson / Geometry
19 May 2019

Name:

Quadrilateral Family Tree

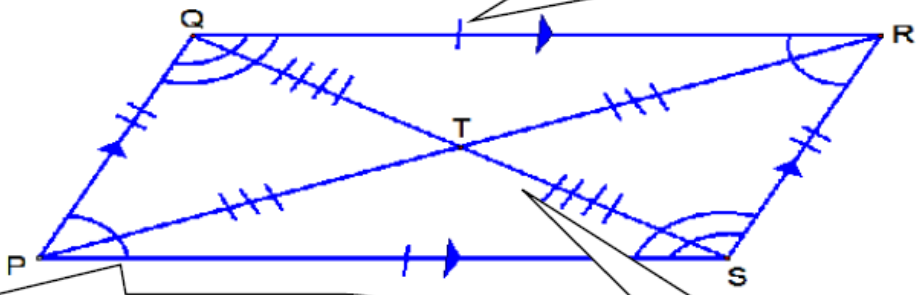


BECA / Huson / Geometry Name:
19 May 2019

Properties of Parallelograms -- Notes

Definition:

Properties of the Sides:
- Both pairs of opposite sides parallel
- Both pairs of opposite sides congruent



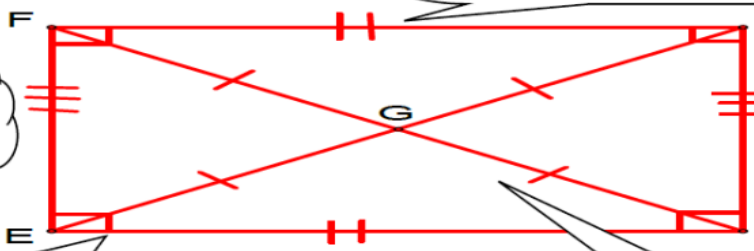
Properties of the Angles:
- Both pairs of opposite angles congruent
- Consecutive angles are supplementary
- Interior angle sum is 360 degrees

Properties of the Diagonals:
- Diagonals bisect each other

Properties of Rectangles --- Notes

DEFINITION:

Properties of the Sides:
- Both pairs of opposite sides parallel
- Both pairs of opposite sides congruent



Interior angle sum of 360 degrees.

Diagonals create congruent right triangles.

Properties of the Angles:
- Both pairs of opposite angles congruent
- Consecutive angles are supplementary
- Four right angles

Bisected diagonals create isosceles triangles.

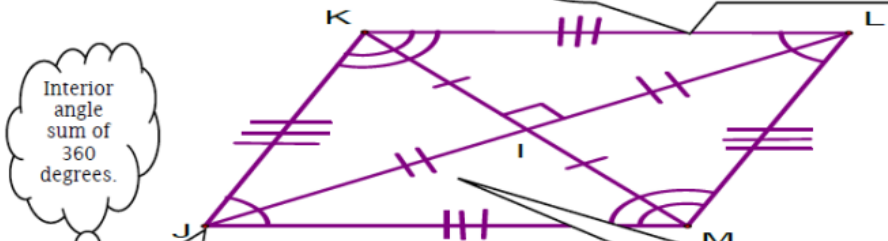
Properties of the Diagonals:
- Diagonals bisect each other
- Diagonals are congruent

BECA / Huson / Geometry Name:
19 May 2019

Properties of Rhombi --- Notes

DEFINITION:

Properties of the Sides:
- Both pairs of opposite sides parallel
  -
- Four congruent sides
  -



Interior angle sum of 360 degrees.

Opposite sides are congruent if all sides congruent

Properties of the Angles:
- Both pairs of opposite angles congruent
  - $\angle K \cong \angle M$ *and* $\angle J \cong \angle L$
- Consecutive angles are supplementary
  - $\angle J + \angle M = 180$, $\angle M + \angle L = 180$, $\angle L + \angle K = 180$, $\angle K + \angle J = 180$

Bisected diagonals create right triangles.

Properties of the Diagonals:
- Diagonals bisect each other
  - $\overline{KI} \cong \overline{IM}$ *and* $\overline{JI} \cong \overline{IL}$
- Diagonals are perpendicular
  - $\overline{KM} \perp \overline{JL}$
- Diagonals bisect opposite angles
  - $\angle JKM \cong \angle LKM$ *and* $\angle JMK \cong \angle LMK$
  - $\angle MLJ \cong \angle KLJ$ *and* $\angle KJL \cong \angle MJL$

Properties of Squares --- Notes

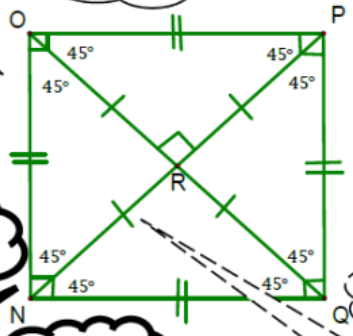
Properties of the Sides:
- All the properties of a:
  -
  -
  -

Opposite sides are

Four congruent sides.

DEFINITION:

Opposite sides are parallel.



Diagonals bisect opposite angles.

Interior angle sum of degrees

Consecutive angles

Diagonals are

Opposite angles

Four right

Properties of the Angles:
- All the properties of a:
  -
  -
  -

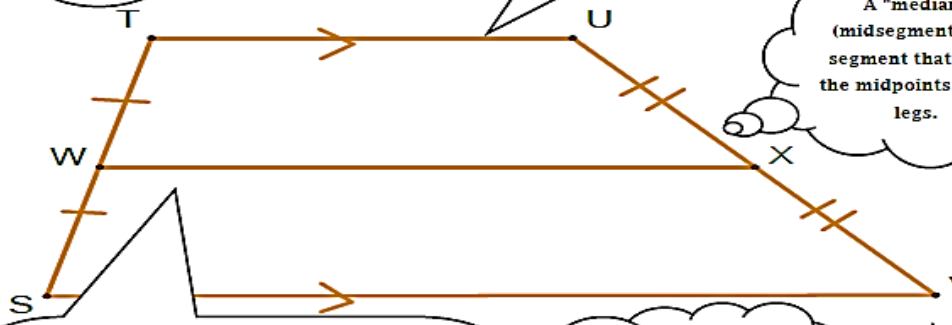
Properties of the Diagonals:
- All the properties of a:
  -
  -
  -

BECA / Huson / Geometry Name:
19 May 2019

Properties of Trapezoids --- Notes

DEFINITION:

Property of the Sides:
- One pair of opposite sides parallel
  -



A "median" (midsegment) is a segment that joins the midpoints of the legs.

Properties of the Midsegment:
- Parallel to both bases
  -
- Divides the legs into congruent pieces
  -
- Equal to 1/2 the sum of the bases
  -

The parallel lines and transversals = some consecutive interior angles congruent.

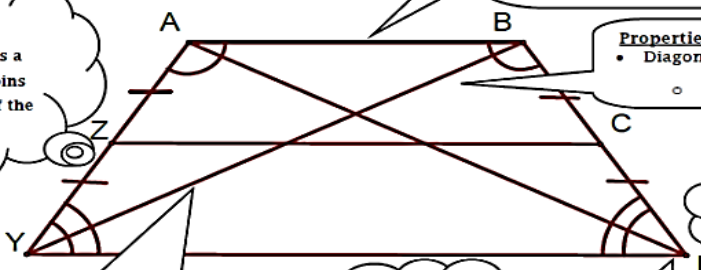
Properties of the Angles:
- Add to 360 degrees
  - $\angle T + \angle U + \angle V + \angle S = 360$

Properties of Isosceles Trapezoids --- Notes

DEFINITION:

Property of the Sides:
- One pair of opposite sides parallel
  - $\overline{AB} \parallel \overline{YD}$
- The legs are congruent
  -

A "median" (midsegment) is a segment that joins the midpoints of the legs.



Properties of the Diagonals:
- Diagonals are congruent
  -

Opposite angles are supplementary.

Properties of the Midsegment:
- Parallel to both bases
  - $\overline{AB} \parallel \overline{ZC} \parallel \overline{YD}$
- Divides the legs into congruent pieces
  - $\overline{AZ} \cong \overline{ZY}$, $\overline{BC} \cong \overline{CD}$,
- Equal to 1/2 the sum of the bases
  - $\overline{ZC} = \frac{1}{2}(\overline{AB} + \overline{YD})$

The parallel lines and transversals = some consecutive interior angles congruent.

Properties of the Angles:
- Add to 360 degrees
  - $\angle A + \angle B + \angle D + \angle Y = 360$
- Two pairs of base angles congruent
  -

BECA / Huson / Geometry Name:
19 May 2019

The Family of Quadrilaterals -- Graphic Organizers

Directions: Shade each box that is true. If is only true for one pair, indicate so by stating "one pair" instead of shading. If the property is not true, leave the box blank.

Property	Trapezoid	Isosceles Trapezoid	Parallelogram	Rectangle	Rhombus	Square
Opposite Sides parallel						
Opposite sides congruent						
Four congruent sides						
Opposite angles congruent						
Consecutive Angles Supplementary						
Four right angles						
Diagonals bisect each other						
Diagonals are congruent						
Diagonals form 2 congruent triangles						
Diagonals are perpendicular						
Diagonals bisect angles						