**6.5 Trapezoids**

**VOCABULARY:**

 **Trapezoid:** A trapezoid is a quadrilateral with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

 **Bases of a trapezoid:** The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sides of a trapezoid are the bases.

 **Legs of a trapezoid:** The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ sides of a trapezoid are the legs.

Label the Bases and Legs:

**Base angles of a trapezoid:** If trapezoid ABCD has bases $\overbar{AB}$ and $\overbar{CD}$, then there are two pairs of base angles: m∠A and m∠B, and m∠C and m∠D.

**Isosceles trapezoid:**  An isosceles trapezoid is a trapezoid with \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ legs.

**Midsegment of a trapezoid:** The midsegment of a trapezoid is the segment that connects the midpoints of its\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**THEOREM 6.12**

**Words:** If a trapezoid is isosceles, then each pair of base angles is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Symbols:** In the isosceles trapezoid ABCD, $m∠A≅m∠B$ and $m∠C≅m∠D$.

**THEOREM 6.13**

**Words:** If a trapezoid has a pair of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ base angles, then it is isosceles.



**Symbols:** In trapezoid ABCD, if $m∠C≅m∠D$, then ABCD is isosceles.

**Tell whether the statement is true for *isosceles triangles*, *isosceles trapezoids*, *both* or *neither*.**

Legs are congruent. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Base angles are congruent. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Bases are parallel. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Legs are parallel. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example 1:

PQRS is an isosceles trapezoid. Find the missing angle measures.

a. b.

 

**Midsegment of a trapezoid:** The length of the midsegment of a trapezoid is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

$MN=\frac{1}{2}(AD+BC)$ 

Example 2:

A) Find the length of the midsegment $\overbar{DG}$ of the trapezoid CEFH.



B) Find the length of the midsegment $\overbar{MN}$ of the trapezoid.

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