**Notes: MidSegment Theorem Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**WARM UP**

1. Plot $∆ABC$ where *A*(0, 0) *B*(0, 6) *C*(8, 0)

2. Find the midpoint of *AC.* Label it *E.*

3. Find the midpoint of *AB.* Label it *F.*

4. Draw a segment to connect point *E* and point *F.*

5. Find the length of *EF \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

6. Find the length of *BC \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_*

7. What do you notice about the 2 lengths?

8. Find the slope of *EF \_\_\_\_\_\_\_\_\_\_*

9. Find the slope of *BC \_\_\_\_\_\_\_\_\_\_*

10. What do you notice about the 2 slopes

11. Describe the transformation that happens from $∆ABC$ to $∆AEF$.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Theorem**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ connecting two sides of a triangle is parallel to the third side and is half as long.



**If *B* is the midpoint of** $\overbar{AD}$ **and *C* is the midpoint of** $\overbar{AE},$

**Then** $\overbar{BC}∥\overbar{DE}$ **and** $BC=\frac{1}{2}DE$

Example 1: **Solve for** $x=\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$ Example 2: **Use the diagram of** $∆ABC$ **where D, E, and F are**

 **the midpoints of the sides.**



1. $\overbar{DE}∥\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$
2. $\overbar{AB}∥ \\_\\_\\_\\_\\_\\_\\_\\_\\_\\_\\_$
3. **If** $AB=14,$ **then** $EF= \\_\\_\\_\\_\\_\\_\\_\\_\\_$
4. **If** $AE=8,$ **then** $DF= \\_\\_\\_\\_\\_\\_\\_\\_\\_$
5. **If** $DE=6,$ **then** $BC= \\_\\_\\_\\_\\_\\_\\_\\_\\_$

Understanding Check:

**What are the three key properties or characteristics of a midsegment?**

**1.**

**2.**

**3.**