**Unit 5 #8 Midsegment Theorem**

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| PROPERTIES1. The mid-segment of a triangle joins the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of two sides of a triangle such that it is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the third side of the triangle.
2. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a triangle joins the midpoints of two sides of a triangle such that its \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_ the length of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ side of the triangle.
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SO WHAT DOES THAT MEAN??



**Example 1:** Find the length of the midsegment  *GH.* **Example 2:** Given DE is the midsegments of AB, DF

is the midsegments of CB, & EF is the midsegment

****of AC, Find the perimeter of ΔABC.

**Examples:** Find the value of the variable.

**3. 4.**

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**Example 5:** Find the length of *SQ*. **Example 6:** Find the length of the midsegments.

 

\_\_\_\_\_\_\_ + \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_

**Pythagorean Theorem:**

**Problem-Based Task: Life-Size Support**

Alex is assembling a life-size cardboard cutout of his favorite musician. The package contains three pieces of cardboard: the cutout, which measures 66 inches; the horizontal, which measures 15.5 inches; and the angled support, which attaches to the back of the cutout at a point that is $\frac{2}{3}$ the length of the cutout from the floor. The horizontal support acts as the midsegments connecting the cutout and the angled support. What is the length of the angled support rounded to the nearest inch?

1. If the cutout measures 66 inches, what is $\frac{2}{3}$ the length of the cutout?
2. The horizontal support acts as the midsegment connecting the cutout to the angled support. How does the length of the midsegment compare to the side it is parallel to?
3. If the horizontal support is 15.5 inches, what is the distance from the bottom of the angled support to the base of the cutout?
4. How can you determine the length of the angled support?
5. What is the length of the angled support rounded to the nearest inch?