

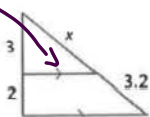
Geometry CC – Mr. Valentino  
 Unit 6 Lesson 4: Similarity and Midsegments!

Name: \_\_\_\_\_  
 Date: \_\_\_\_\_ Period: \_\_\_\_\_

Aim: What are midsegments?

Side Splitter

Do Now: Find the length of the missing side  $x$ .



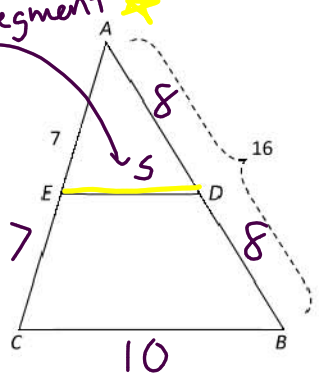
$$\frac{3}{2} = \frac{x}{3.2}$$

$$\frac{2x}{2} = \frac{9.6}{2}$$

$$x = 4.8$$

★ midsegment ★

1) What would happen if  $\overline{ED}$  bisected sides  $\overline{AC}$  and  $\overline{AB}$ ? Can you find the values below?

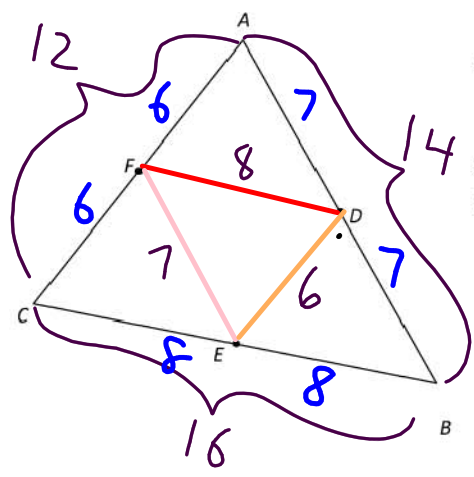


- a)  $m\overline{AD} = 8$
- b)  $m\overline{DB} = 8$
- c)  $AC = 14$
- d)  $EC = 7$
- e) Pick your own value for  $ED$ .  
5
- f) Based on your pick, what is  $m\overline{CB}$ ?  
10

2) We call  $\overline{ED}$  a midsegment of  $\triangle ABC$ . How many midsegments does a triangle have?

3 midsegments

3)  $\triangle ABC$  is shown with the midpoints of its sides labeled. Sketch the triangle's midsegments.

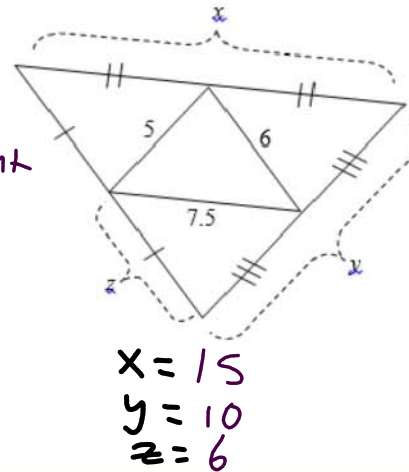
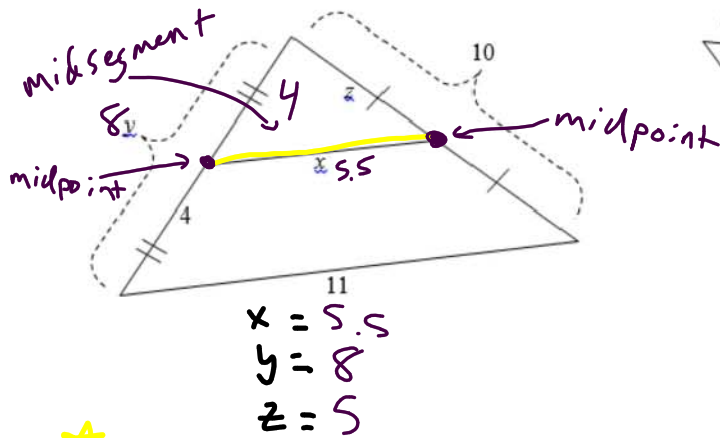


4) Let's pick some values for some segments, and fill in the rest!

5) What is the ratio of the perimeter of  $\triangle ABC$  to the perimeter of  $\triangle DEF$ ?

perimeter  $\triangle ABC = 12 + 14 + 16 = 42$   
 perimeter  $\triangle DEF = 6 + 7 + 8 = 21$   
 ★ 2:1 ratio ★

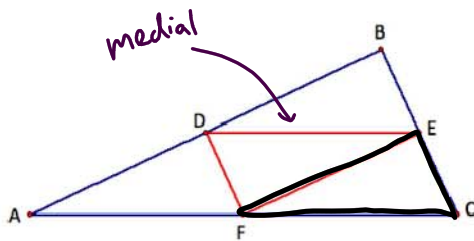
6. Find the measure of each variable:



A midsegment of a triangle has 3 properties:

- A] It joins the midpoints of 2 sides in a triangle.
- B] It is half of the side that it doesn't intersect.
- C] It is also parallel to the side that it doesn't intersect.

When 3 midsegments are drawn it forms the MEDIAL triangle



Name the medial triangle:  $\triangle DEF$

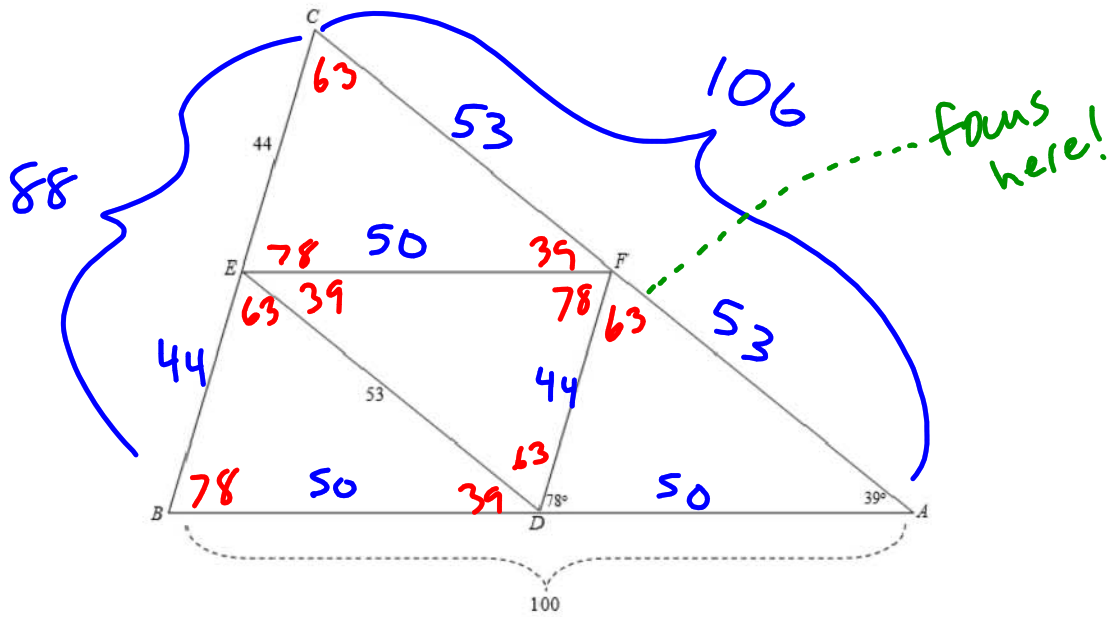
What is the perimeter of the medial triangle compared to the larger triangle?

$\frac{1}{2}$  the perimeter of the larger  $\triangle$

What is the area of the medial triangle compared to the larger triangle?

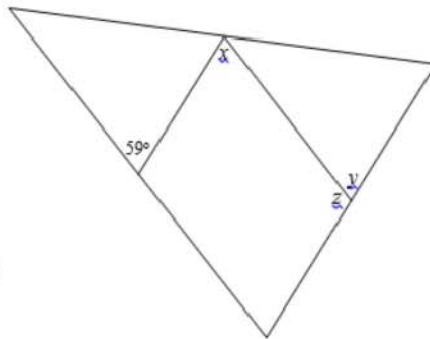
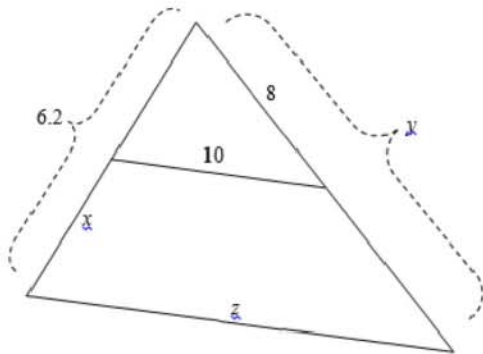
$\frac{1}{4}$  the area of the larger  $\triangle$

In the diagram,  $D$ ,  $E$ , and  $F$  represent the midpoints of  $\overline{AB}$ ,  $\overline{BC}$ , and  $\overline{AC}$  respectively. Fill in as many segment and angle measures as you can.

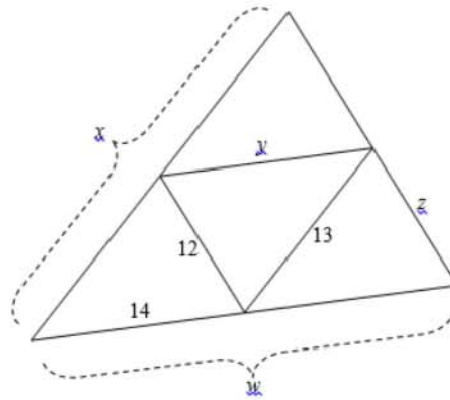
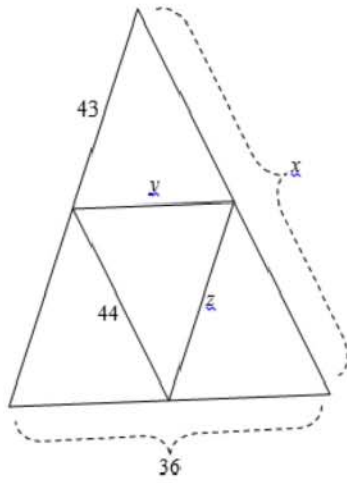


Practice Problems! Yes.

1. Each diagram shows a triangle and its **midsegments**. Find the indicated values.



x =  
y =  
z =



2. If the perimeter of a triangle is 80 units, what is the perimeter of its medial triangle?
  
3. If the area of a triangle is 100 square units, what is the area of its medial triangle?
  
4. If the perimeter of a triangle's medial triangle is 30 units, what is the perimeter of the triangle?