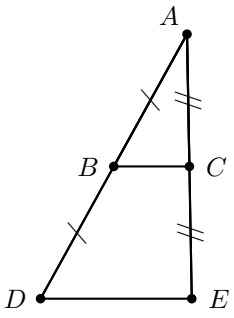
Name: # Midsegments of Triangles Period:

Learning Intention: Identifying and utilizing properties of midsegments in triangles.
Next Generation Learning Standards: GEO-G.SRT.4, GEO-G.SRT.5
Standards for Mathematical Practice: MP1, MP2, MP7
Success Criteria: • I can find measures of a triangle using properties of the midsegment. • I can identify parallel sets of segments using properties of the midsegment.

Warm-Up (On Your Own): Recall (or review your notes on) Similarity and Partitioning on Line Segments to answer the following questions:



1. What is the ratio of $\overline{AB}$ to $\overline{AD}$? (Hint: The congruence ticks are trying to tell you something!)

2. Are the two triangles similar? If so, write the Similarity Postulate to the right that defends this, and fill-in the similarity statement below...

$\triangle$_____ $\sim$ $\triangle$_____

Preparing for Today's Lesson (Think & Share): B and C are the _____ of $\overline{AD}$ and $\overline{AE}$, respectively. This makes $\overline{BC}$ known as a midsegment of $\triangle ADE$.

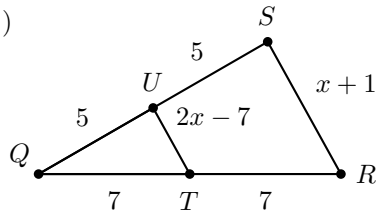
Do you *notice* any particular relationship between $\overline{BC}$ and $\overline{DE}$?

Knowing this, what is the definition of a midsegment?

What is the ratio of $\overline{BC}$ to $\overline{DE}$?_____ How many midsegments can a triangle have?_____

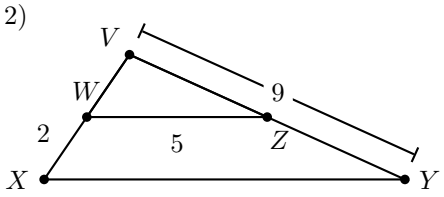
The Class Beasts: The above concepts are necessary to slay these types of beasts.

1)



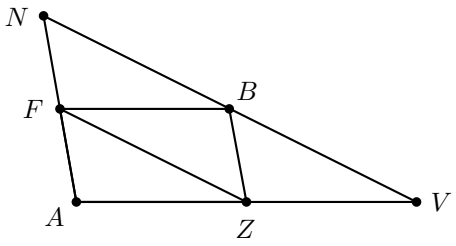
Find the length of $\overline{UT}$.

2)



If $\overline{WZ}$ is a midsegment of $\triangle VXY$, then what are XV, ZY, and XY?

3)



Suppose $\overline{FZ}$, $\overline{FB}$, and $\overline{BZ}$ are all midsegments of $\triangle VAN$. Then complete the following statements:

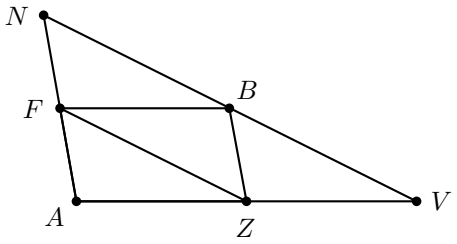
_____$\| \overline{FZ}$ $\quad \overline{FA} \cong$ _____ $\cong \overline{NF}$

_____$\| \overline{NA}$ $\quad \overline{AZ} \cong$ _____ $\cong \overline{ZV}$

_____$\| \overline{ZV}$ $\quad \overline{NB} \cong$ _____ $\cong \overline{BV}$

Your Hunt (We Do/You Do): Continue your work on yesterday's worksheet. Mark or indicate one question (if any) that puzzles you the most out of them all for us to do together.

Preparing for Today's Lesson (Think & Share): Let's look at Problem 3 from yesterday's Beasts...



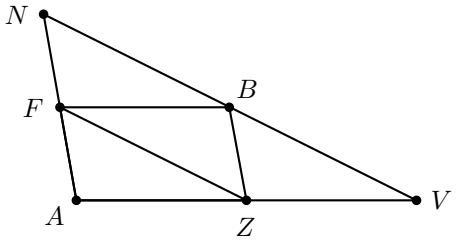
What can we say about the relationship between $\angle FZB$ and $\angle ZBV$? What is your justification for that?

What about $\angle ANV$ and $\angle ZBV$? And your justification?

Try and show *all* of the angular congruences in this image using our symbols on the picture itself. Are there any new consequences or revelations you can make with these congruences?

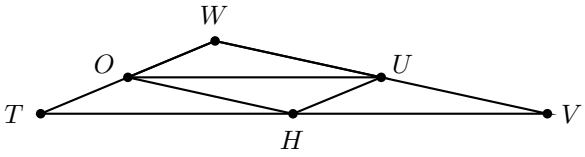
The Class Beasts: With the above concepts, we can now slay the following beasts...

1) (Beast of Math)



If $m\angle FZB = 33°$ and $m\angle BFZ = 24°$, then what is the measure of $\angle NVA$?

2) (Beast of Math)



If $m\angle WOH = 70$, then what is the measure of $\angle HOT$?

3) (Whelp of Math) In today's problems, how many triangles were in each picture?

4) (Whelp of Math) In today's problems, how many quadrilaterals were in each picture?

5) (Monster of Math) What kind of quadrilateral is $WUHO$? Explain why (through proof, if you want practice.)

6) (Monster of Math) $\triangle NFB \cong \triangle ZBF$ and $\triangle VBZ \cong \triangle FZB$. Does that mean $NFZB \cong VZFB$? Why or why not?