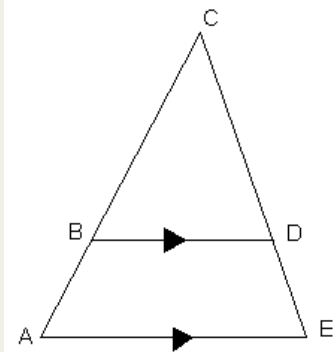


7.4 Parallel Lines and Proportional Parts

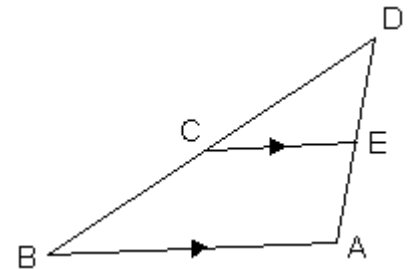
G.T.1 Prove and apply theorems about triangles.
 G.T.5 Use properties of congruent and similar triangles to solve real-world and mathematical problems involving sides, perimeters and areas of triangles.

Triangle Proportionality Theorem



Ex 1:

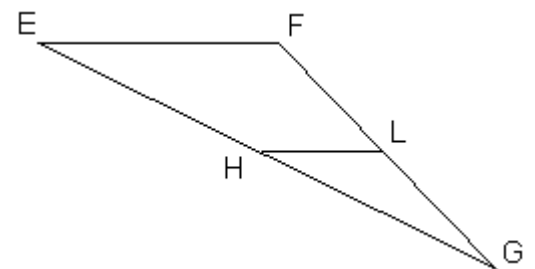
In $\triangle ABD$, $\overline{AB} \parallel \overline{EC}$, $CB = 18$, $DC = 6$, and $EA = 27$.
 Find DE .



Converse of the Triangle Proportionality Theorem

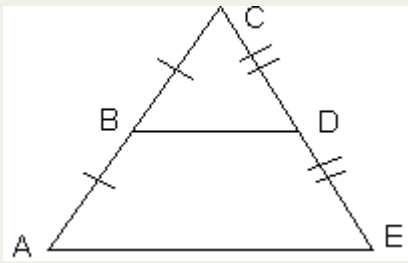
Ex 2:

In $\triangle EFG$, $EG = 24$, $EH = 8$, and LG is twice FL .
 Determine whether $\overline{HL} \parallel \overline{EF}$. Justify your answer.



_____ \Rightarrow a segment with endpoints that are midpoints of two sides of the triangle

Triangle Midsegment Theorem

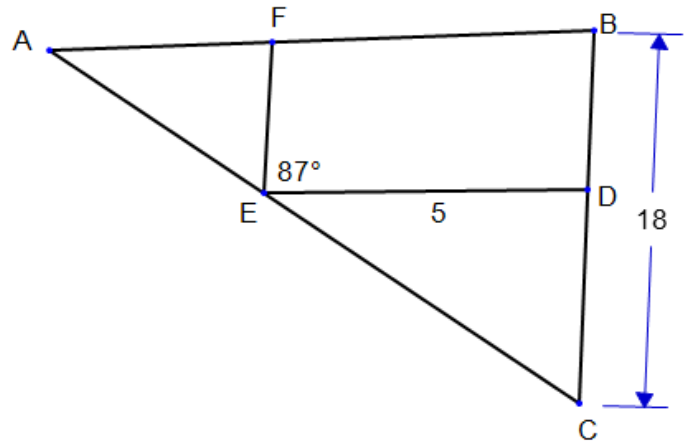


If B and D are midpoints of \overline{AC} and \overline{CE} respectively, then

Ex 3:

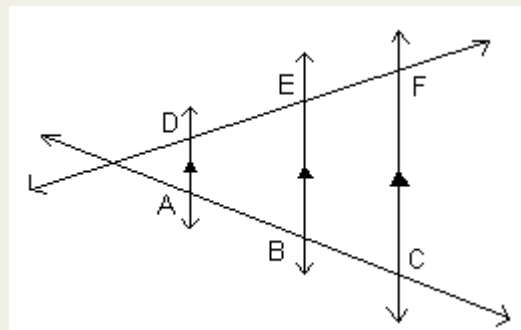
In the figure, \overline{DE} and \overline{EF} are midsegments of $\triangle ABC$. Find each measure.

- AB
- FE
- $m\angle AFE$



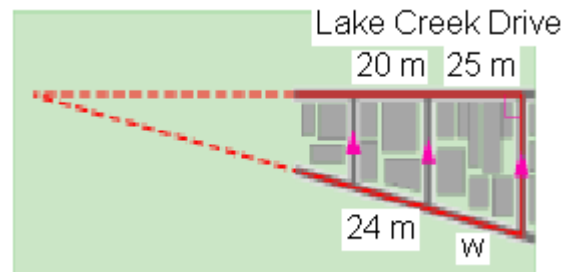
Proportional Parts of Parallel Lines

If $\overline{AD} \parallel \overline{EB} \parallel \overline{FC}$, then _____.



Ex 4:

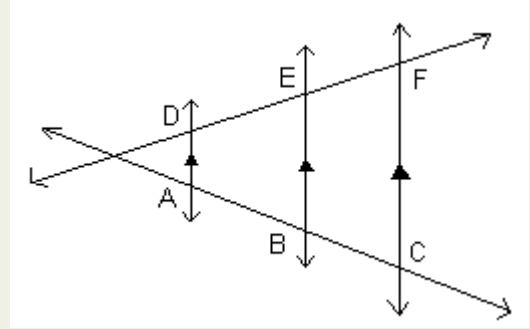
In Lake Creek, the lots on which houses are to be built are laid out as shown. Using the distances shown, find w .



Congruent Parts of Parallel Lines

If $\overleftrightarrow{AD} \parallel \overleftrightarrow{EB} \parallel \overleftrightarrow{FC}$ and $\overline{AB} \cong \overline{BC}$, then

_____.



Ex 5:

Find x and y .

