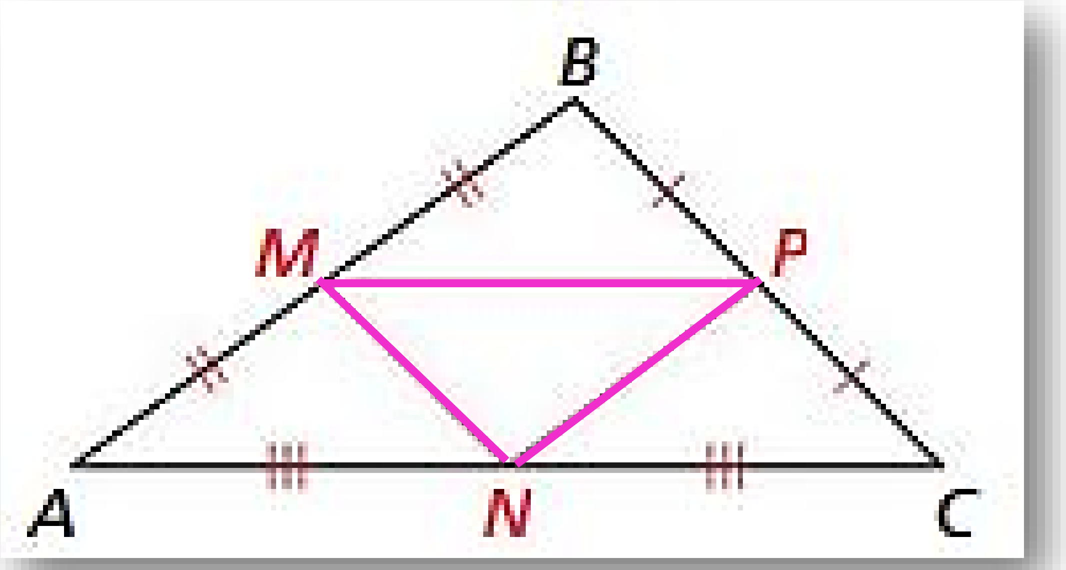
The Triangle Midsegment Theorem

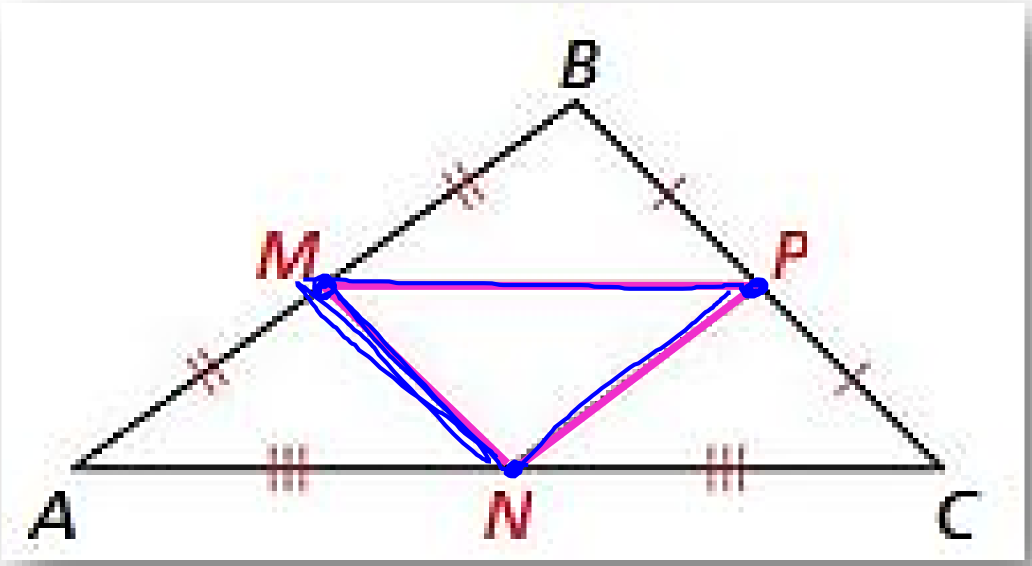
Lesson 6.4



The Midsegment of a Triangle

The midsegment of a triangle is a segment that connects the midpoints of two sides of a triangle.

- Every triangle has three midsegments which form the midsegment triangle.



Observations

What do you notice about the slopes of $\overline{DE}$ and $\overline{AC}$?

Same slope , //

m of $\overline{DE} = \frac{3}{2}$ m of $AC = \frac{6}{4}$

What do you notice about the lengths of $\overline{DE}$ and $\overline{AC}$?

$2 \cdot 2 + 3 \cdot 3 = CE^2$

$\sqrt{4+9} =$

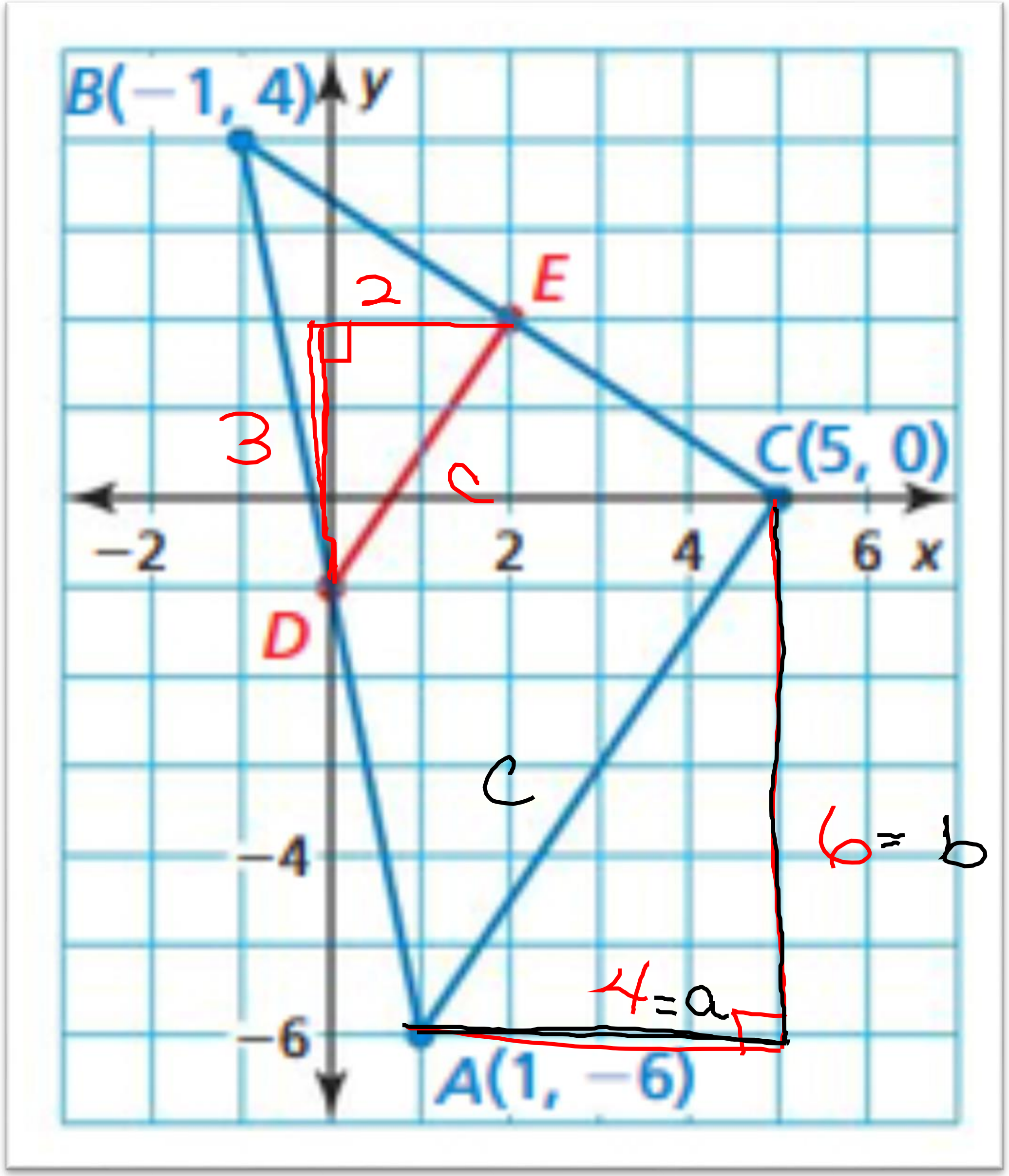
$\sqrt{13} = CE$

$\sqrt{16+36}$

$\sqrt{52}$

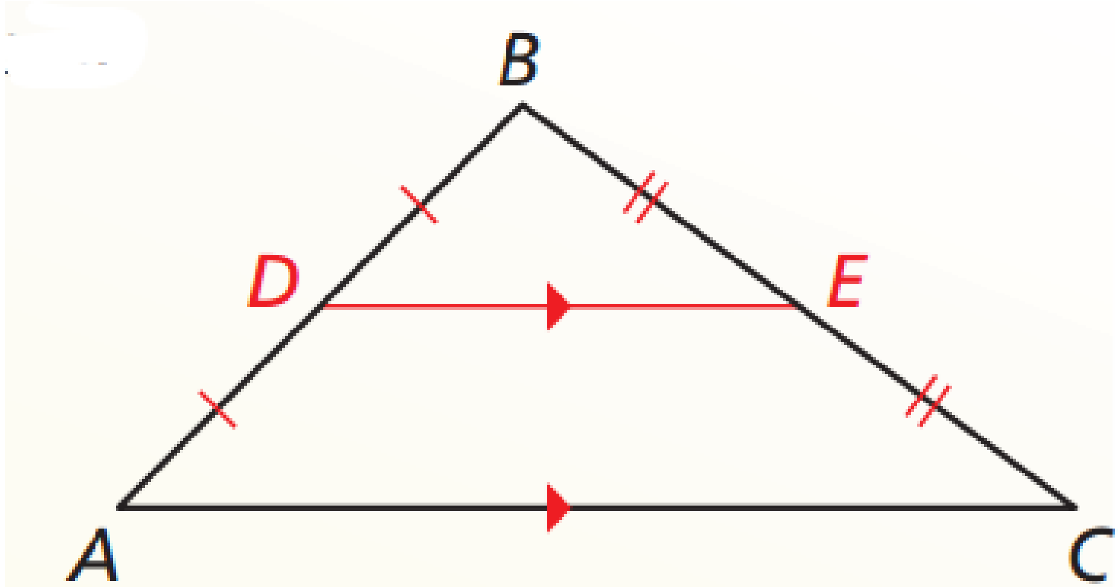
$\sqrt{4 \cdot 13}$

$2\sqrt{13}$



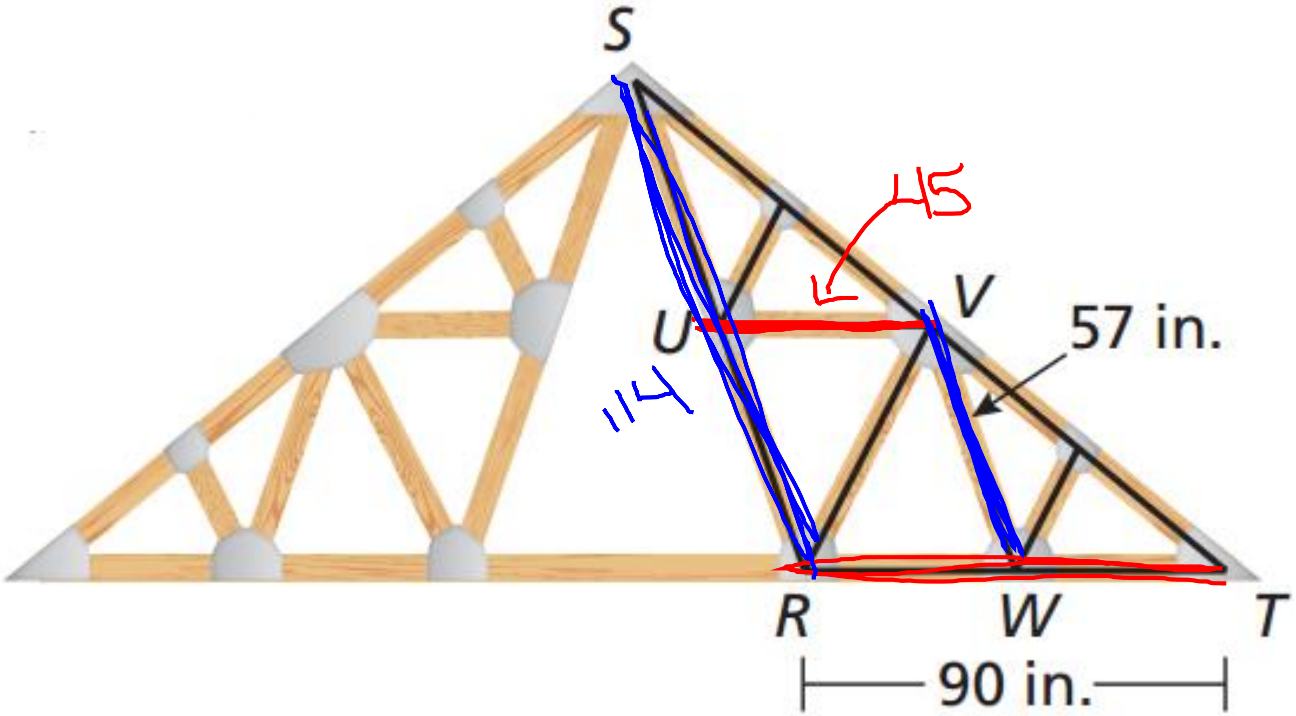
Triangle Midsegment Theorem

The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is half as long as that side. $\overline{DE}$ is a midsegment of ΔABC, $\overline{DE} \parallel \overline{AC}$, and DE = ½AC.



Using the Triangle Midsegment Theorem

Triangles are used for strength in roof trusses. In the diagram, $\overline{UV}$ and $\overline{VW}$ are midsegments of △RST. Find UV and RS.



Lesson 6.4 p.333; 3-4, 7-19, 21