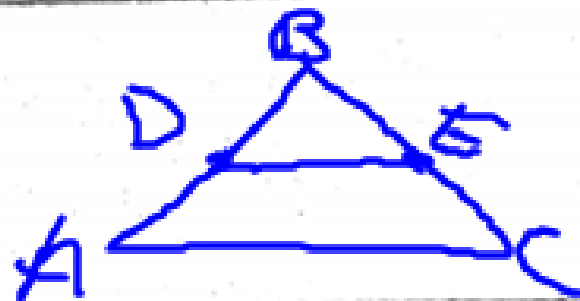


5.1 Midsegment Theorem and Coordinate Proof

Goal • Use properties of midsegments and write coordinate proofs.



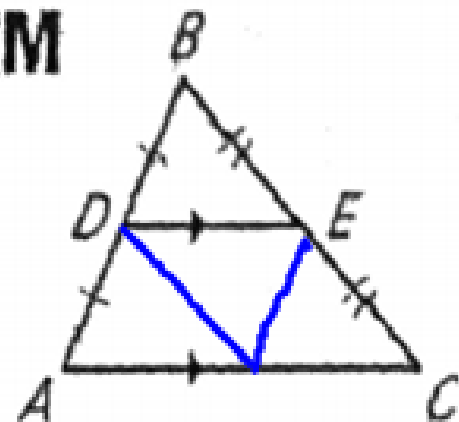
VOCABULARY

a segment that connects the midpts of 2 sides in a triangle.
Midsegment of a triangle

Placing geometric figures in a
Coordinate proof coordinate plane.

THEOREM 5.1: MIDSEGMENT THEOREM

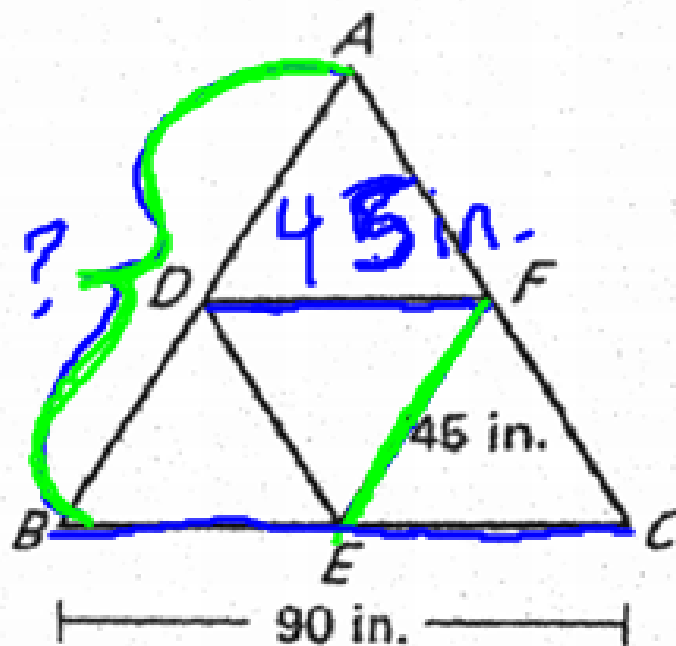
The segment connecting the midpoints of two sides of a triangle is Parallel to the third side and is $\frac{1}{2}$ as long as that side.

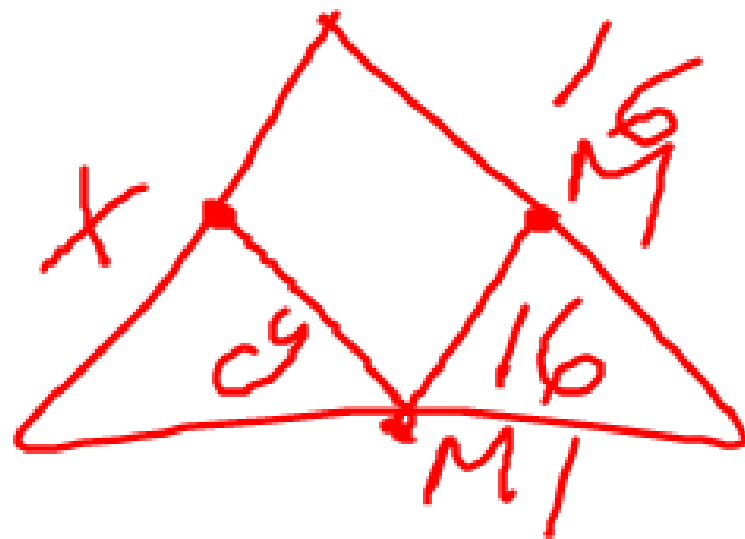


$$\overline{DE} \parallel \overline{AC} \text{ and } DE = \frac{1}{2}AC$$

Example 1

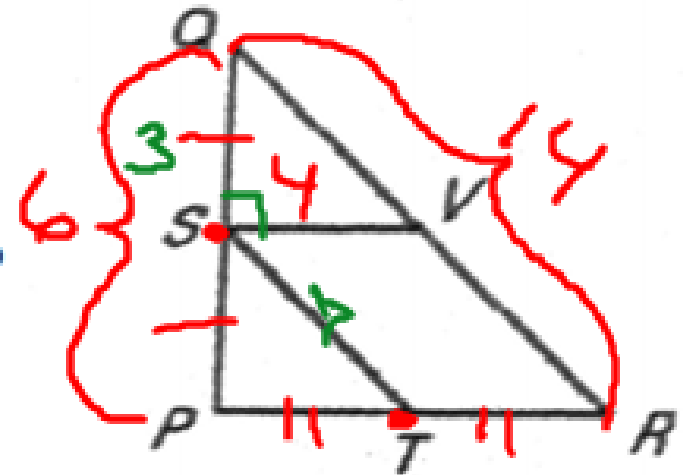
Windows A large triangular window is segmented as shown. In the diagram, \overline{DF} and \overline{EF} are midsegments of $\triangle ABC$. Find DF and AB .





Example 2

In the diagram at the right, $QS = SP$
and $PT = TR$. If $QR = 14$, $SV = 4$, $QP = 6$
Find QS , QV , VR , & ST .



$$QS = 3$$

$$QV = 5$$

$$VR = 9$$

$$ST = 7$$

$$a^2 + b^2 = c^2$$
$$3^2 + 4^2 = c^2$$
$$9 + 16 = c^2$$
$$\sqrt{25} = \sqrt{c^2}$$
$$c = 5$$