

Honors Geometry

Notes Section 5.1

Midsegment Theorem and Coordinate Proof

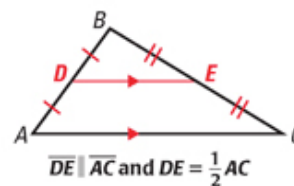
VOCABULARY

Midsegment of a triangle: _____

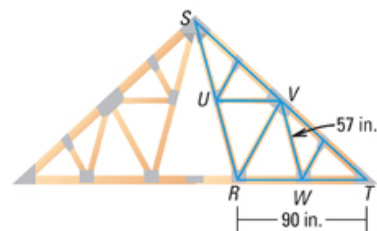
Coordinate Proof: _____

THEOREM 5.1 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.



EXAMPLE 1 UV and VW are midsegments of $\triangle RST$.
Find UV and RS.



EXAMPLE 2 In the Kaleidoscope image, $AE \cong BE$ and $AD \cong CD$.
Show that $CB \parallel DE$.



Example 3 Place each figure in a coordinate plane in a way that is convenient for finding side lengths. Assign coordinate to each vertex.

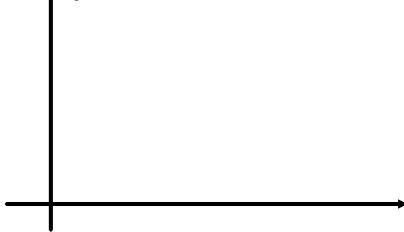
a) Rectangle



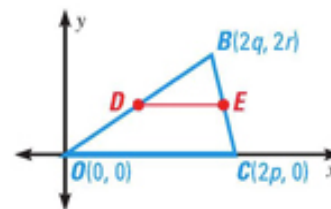
b) scalene triangle



Example 4 Place an isosceles right triangle in a coordinate plane. Then find the length of the hypotenuse and the coordinates of its midpoint M .



Example 5 Given: DE is a midsegment of $\triangle OBC$
 Prove: $DE \parallel OC$ and $DE = \frac{1}{2}OC$



Step 1: Find D and E

Step 2: Find m of DE and OC

Step 3: Find DE and OC