Geometry

5.1 Midsegment Theorem and Coordinate Proof

# Midsegment of a Triangle

sides

midpoints

* Segment that connects the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of two \_\_\_\_\_\_\_\_\_\_ of a triangle

## Midsegment Theorem

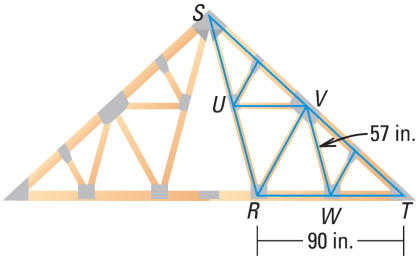
side

half

third

parallel

The midsegment of a triangle is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the \_\_\_\_\_\_\_\_\_\_\_\_\_ side and is \_\_\_\_\_\_\_\_\_ as long as that \_\_\_\_\_\_\_\_\_\_\_.

Name the midsegments.

Draw the third midsegment.

Let UW be 81 inches. Find VS.



# Coordinate Proof

center

vertex

origin

1. Use the \_\_\_\_\_\_\_\_\_\_ as a \_\_\_\_\_\_\_\_\_\_\_\_ or \_\_\_\_\_\_\_\_\_.

axis

side

1. Place at least one \_\_\_\_\_\_\_\_\_\_\_ of the polygon on an \_\_\_\_\_\_\_\_\_\_\_.

First quadrant

figure

1. Usually keep the \_\_\_\_\_\_\_\_\_\_\_ within the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

simple

computations

coordinates

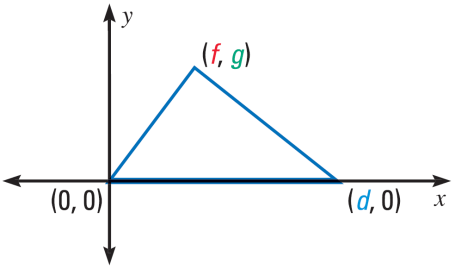
1. Use \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that make \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ as \_\_\_\_\_\_\_\_\_\_\_ as possible.

midpoints

distance

slope

calculating

* You will prove things by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ things like \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Place a **square** in a coordinate plane so that it is convenient for finding side lengths. Assign coordinates.

Place a **right triangle** in a coordinate plane so that it is convenient for finding side lengths. Assign coordinates.

Write a coordinate proof of the midsegment theorem.

Since we’re finding midpoints, it is convenient to use 2a, 2b, and 2c so that the midpoints are whole numbers.

Draw the figure

Draw a midsegment.

Calculate the proof

* Lines are parallel

slopes are the same so lines are parallel

* Midsegment = ½ third side

Assignment: 298 #2-18 even, 24-32 even, 36, 40, 42, 44, 48-52 even = 21 total