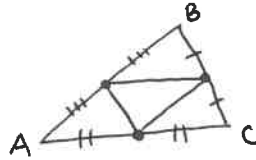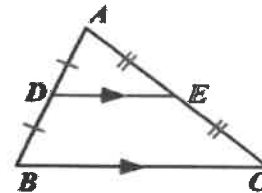Midsegment: a segment that connects the midpoints of 2 sides of a triangle
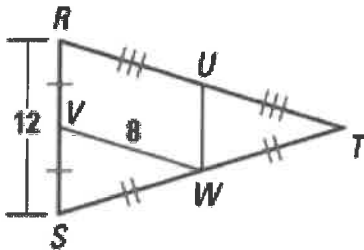

Midsegment Theorem

The segment connecting the midpoints of two sides of a triangle is parallel to the third side and is half as long.

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

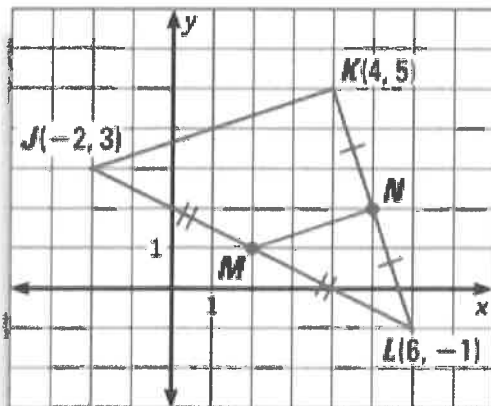1. UW and VW are midsegments of $\triangle RST$. Find UW and RT.

$$UW = \frac{1}{2} RS$$
$$= \frac{1}{2}(12)$$
$$= 6$$

$$VW = \frac{1}{2} RT$$
$$8 = \frac{1}{2} RT$$
$$16 = RT$$

2. Use the coordinate plane below for the following questions
   a. Find the coordinate of the midpoint on $\overline{JK}$.
   b. What is the slope of the midsegment $\overline{MN}$? Is it the same as the slope of $\overline{JK}$?

a) Recall midpoint $= \left(\frac{x_1+x_2}{2}, \frac{y_1+y_2}{2}\right)$

$$\left(\frac{-2+4}{2}, \frac{3+5}{2}\right)$$

$$= (1, 4)$$

b) $m_{MN} = \frac{1}{3}$ $m_{JK} = \frac{1}{3}$

$$\overline{MN} \parallel \overline{JK}$$

3. $\overline{GH}, \overline{HJ}, \overline{JG}$ are midsegments of $\triangle DEF$. Find the following:

a. $\overline{JH} \parallel$ ___DF___

b. $EF =$ ___21.2___

c. $DF =$ ___16___

d. ___GH___ $\parallel \overline{DE}$

e. $GH =$ ___12___

f. $JH =$ ___8___

g. Find the perimeter of

   $\triangle GHJ$

   $10.6 + 8 + 12 = 30.6$