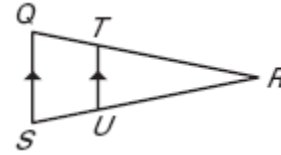# 6-6: Use Proportionality Theorems

Name:_____

WORKSHEET
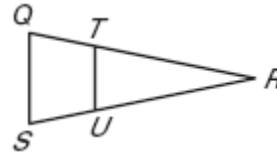
Triangle Proportionality Theorem:

If a line parallel to one side of a triangle intersects the other two sides,

then it divides the two sides **_proportionally._**

If $\overline{TU} \parallel \overline{QS}$, then _____ = _____.

Converse of the Triangle Proportionality Theorem:
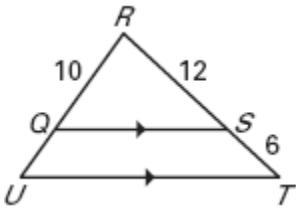
If a line divides two sides of a triangle proportionally,
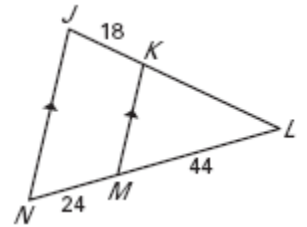then it is parallel to the **_third side._**

If $\dfrac{RT}{TQ} = \dfrac{RU}{US}$, then _____ $\parallel$ _____

Example 1:

 a.) Find the length of $\overline{QU}$
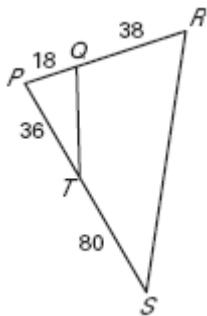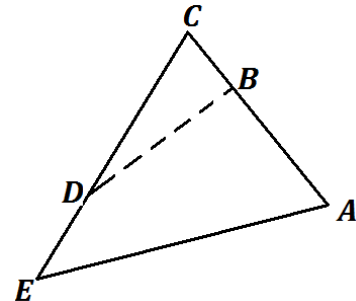

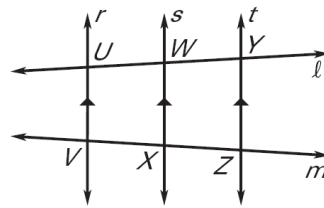 **b.)** Find the length of $\overline{KL}$

Example 2:

 a.) Determine whether $\overline{QT} \parallel \overline{RS}$.

 b.) Given $AB = 31$mm, $BC = 19$mm, $CD = 27$mm,
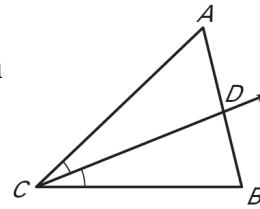 and $DE = 23$mm. Determine whether $\overline{BD} \parallel \overline{AE}$.

**If three parallel lines intersect two transversals, then they divide the transversals _proportionally_.**

$$\frac{UW}{WY} = \underline{\hspace{1cm}}$$

If a ray bisects an angle of a triangle, then it divides th side into segments whose lengths are _proportional_ to the lengths of the other two sides.

$$\frac{AD}{BD} = \underline{\hspace{1cm}}$$

Example 3: A farmer's land is divided by a newly constructed interstate. The distances shown are in meters. Find the distance *CA* between the north border and the south border of the farmer's land.

North Border
2000   2500
E Interstate
B
3000
South Border
West Border
D
A F
C
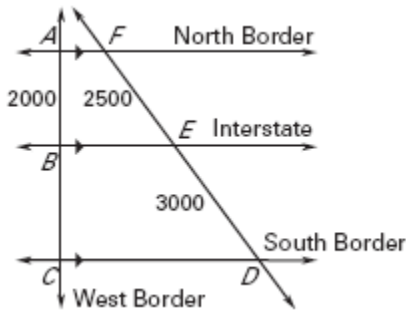
Example 4: In the diagrams, $\angle DEG \cong \angle GEF$. Use the given side lengths to find the length of $\overline{DG}$ in each.

a.)

E
X   18
D   5   G   15   F

b.)

E
8   12
D   X   G   F
14
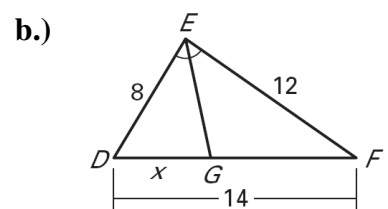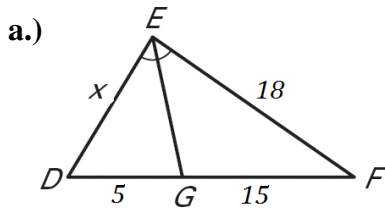
Example 5: Find the length of $\overline{AB}$.

a.)

24   32
27
A
B

b.)

B
3
C
1
A   2   D