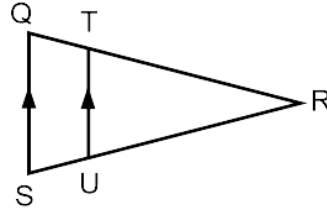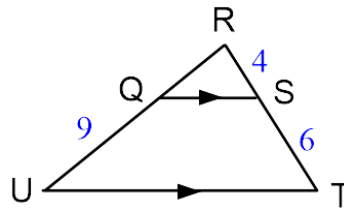## Triangle Proportionality Theorem

*If a line parallel to one side of a triangle intersects the other two side, then it divides the two sides proportionally.

If $\overline{TU} \parallel \overline{QS}$, then $\dfrac{RT}{TQ} = \dfrac{RU}{US}$
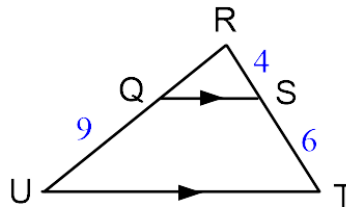
$\overline{QS} \parallel \overline{UT}$
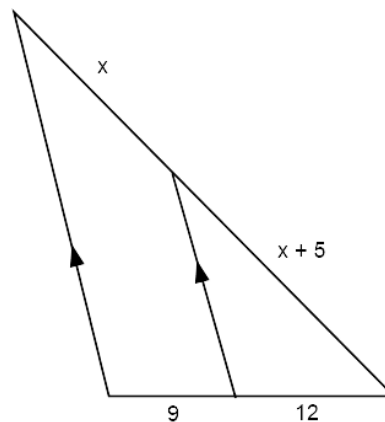What is the length of $\overline{RQ}$?
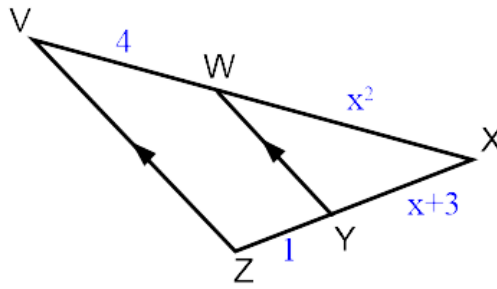
$\overline{QS} \parallel \overline{UT}$
What is the length of $\overline{UT}$?
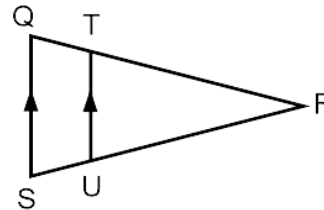
Find the value of x and y.

What is the length of $\overline{WX}$?

Converse of the Triangle Proportionality Theorem

*If a line divides two sides of a triangle proportionally, then it is parallel to the third side.

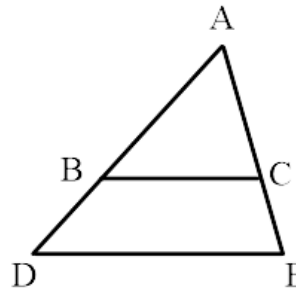If $\frac{RT}{TQ} = \frac{RU}{US}$, then $\overline{TU} \parallel \overline{QS}$

Determine whether $\overline{BC}$ is parallel to $\overline{DE}$ from the given proportions.

1. $\frac{AB}{BD} = \frac{AC}{CE}$

2. $\frac{AC}{CE} = \frac{BC}{DE}$
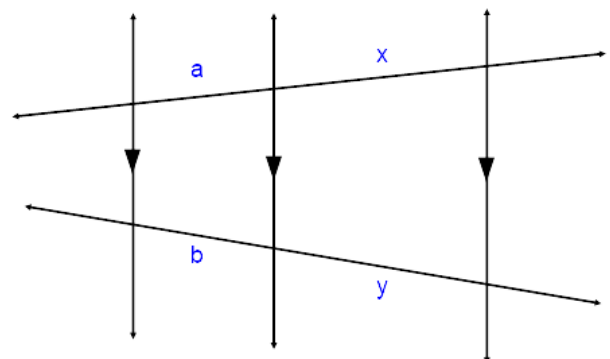
3. $\frac{BD}{CE} = \frac{AB}{AC}$
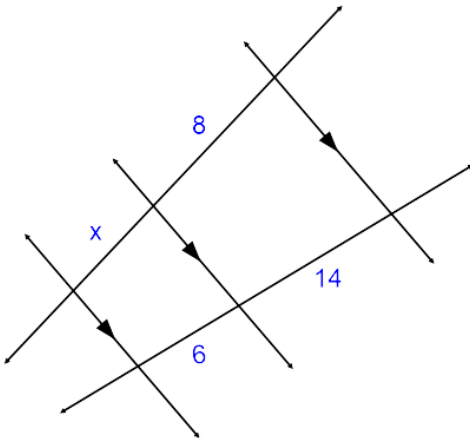
Three parallel lines Theorem

*If three or more parallel lines intersect two transversals, then they divide the transversals proportionally.

$$\frac{a}{b} = \frac{x}{y}$$

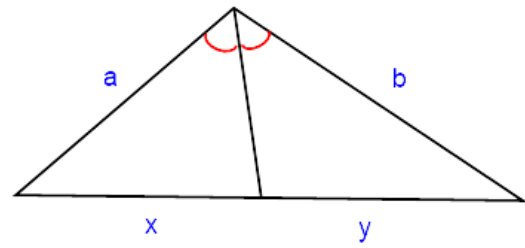Write 3 other proportions that are true.

Find the value of x.

Triangle Angle Bisector Theorem

*An angle bisector of a triangle will divide the opposite side into segments whose lengths are proportional to the lengths of the other two sides.

$$\frac{a}{b} = \frac{x}{y}$$

Write another true proportion.

Find the value of x.