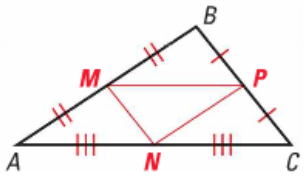
5.4 The Triangle Midsegment Theorem

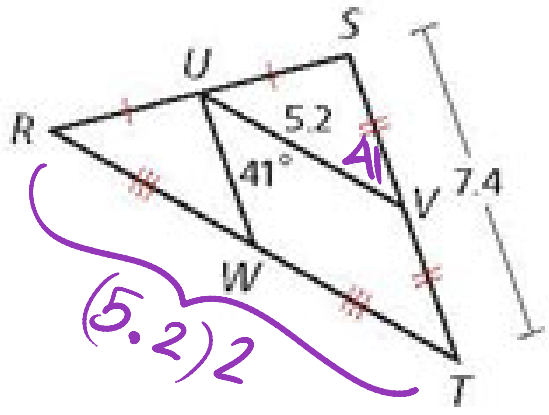
To prove and use properties of triangle midsegments.

Midsegment: A segment that joins the midpoints of two sides of the triangle.

Midsegment Triangle: Formed by 3 midsegments of a triangle.

Theorem	Hypothesis	Conclusion
Triangle Midsegment Theorem: A midsegment of a triangle is parallel to a side of the triangle, and its length is half the length of that side.	 If MP is a midsegment...	then: $MP = \frac{1}{2}AC$ and $\overline{MP} \parallel \overline{AC}$

Use the diagram to solve 1-6.



1) $\overline{UW}$ is a midsegment of $\triangle RST$

2) $\overline{UV}$ is a midsegment of $\triangle RST$

3) $m\angle SVU =$ 41° (alt. int ∠s)

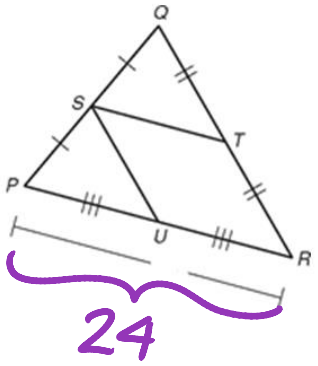
4) $\overline{UW} =$ $\frac{1}{2}(7.4) = 3.7$

5) $\overline{RT} =$ $(5.2)2 = 10.4$

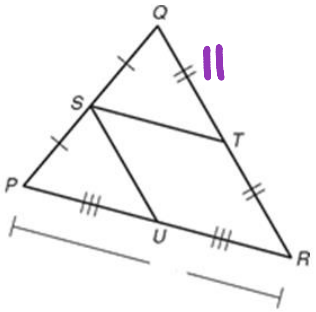
6) $\overline{SV} =$ $\frac{7.4}{2} = 3.7$

Practice!

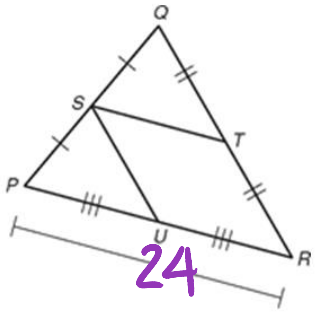
1. Find ST = 12



2. Find QR = 22

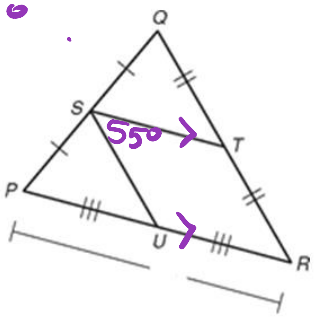


3. Find PU = 12



4. Find $\angle SUP$ = 55°

$\angle TSU = 55^\circ$



6. AC = $3x+7$

HJ = $7x+6$

Find AC = 31

$2(3x+7) = 7x+6$

$6x+14 = 7x+6$

$8 = x$

$AC = 24+7$

$= 31$