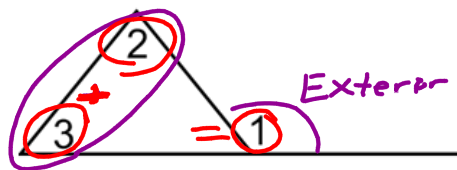


# Exterior Angle Theorem

## Exterior Angle Theorem

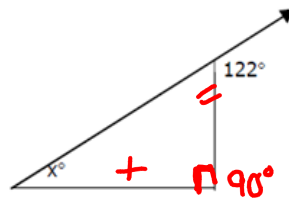
$$\underline{m\angle 1} = \underline{m\angle 2} + \underline{m\angle 3}$$



Examples:

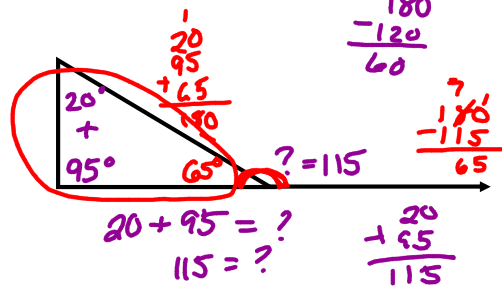
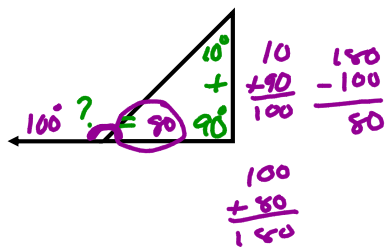
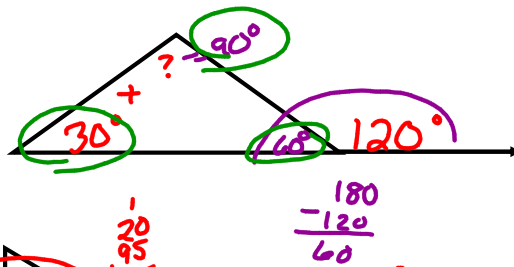
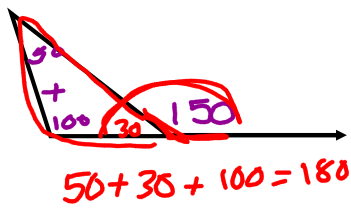
1. Solve for x.

$$\begin{array}{r} x + 90 = 122 \\ - 90 \quad - 90 \\ \hline x = 32^\circ \end{array}$$





$$\begin{aligned} \angle a + \angle b + \angle c &= 180 \\ \angle c + \angle d &= 180 \\ \hline \angle a + \angle b + \cancel{\angle c} &= \cancel{\angle c} + \angle d \\ \underline{\angle a + \angle b} &= \underline{\angle d} \end{aligned}$$



2. Solve for x.

$6x - 7 = 103 - x + 2x$   
 $6x - 7 = 103 + x$   
 $\frac{-x}{-x} \quad \frac{-x}{-x}$   
 $5x - 7 = 103$   
 $\frac{+7}{+7} \quad \frac{+7}{+7}$   
 $\frac{5x}{5} = \frac{110}{5}$   
 $x = 22$

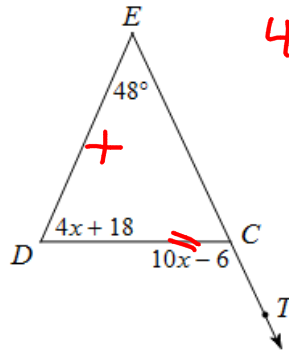
$6 \cdot 22 - 7 = 132 - 7 = 125$   
 $(6x-7)^\circ = 125$   
 $(103-x)^\circ = 103 - 22 = 81$   
 $2x^\circ = 2 \cdot 22 = 44$   
 $125 = 44 + 81$   
 $125 = 125 \checkmark$

3. Solve for x.

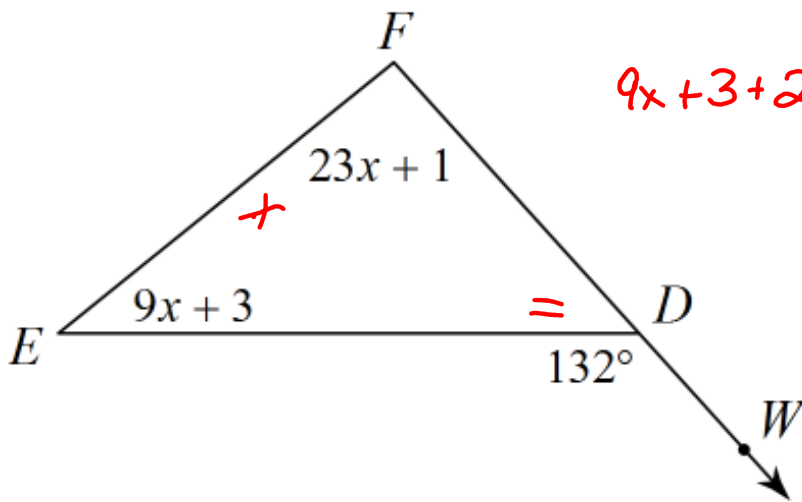
$2x + 3 + 51 = 100$   
 $2x + 54 = 100$   
 $\frac{-54}{-54} \quad \frac{-54}{-54}$   
 $\frac{2x}{2} = \frac{46}{2}$   
 $x = 23$

$100^\circ$   
 $(2x+3)^\circ = 2(23)+3 = 46+3 = 49$   
 $51^\circ$   
 $100 = 49 + 51 \checkmark$

4. Solve for x.

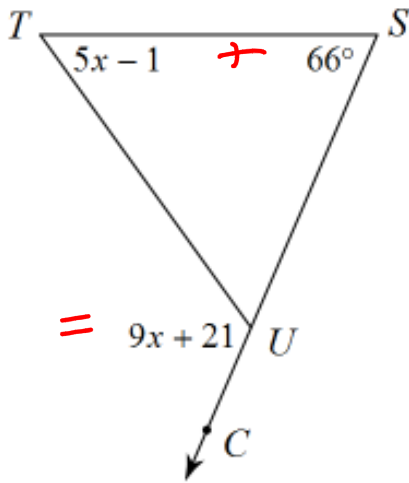


$$\begin{aligned}
 48 + 4x + 18 &= 10x - 6 \\
 4x + 66 &= 10x - 6 \\
 -4x &\quad -4x \\
 \hline
 66 &= 6x - 6 \\
 +6 &\quad +6 \\
 \hline
 72 &= 6x \\
 \frac{72}{6} &= \frac{6x}{6} \\
 \boxed{12 = x}
 \end{aligned}$$



$$\begin{aligned}
 9x + 3 + 23x + 1 &= 132 \\
 &\quad \vdots
 \end{aligned}$$

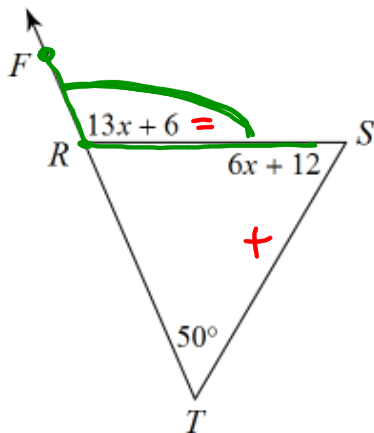
Find  $m\angle T$ .



$$5x - 1 + 66 = 9x + 21$$
$$\vdots$$

Find  $m\angle FRS$ .

FRS



$$13x + 6 = 6x + 12 + 50$$

$$\vdots$$
$$x = \underline{\hspace{2cm}}$$

