

Name Key
Mrs. Roubos/Ms. Michels

Date _____
Period _____

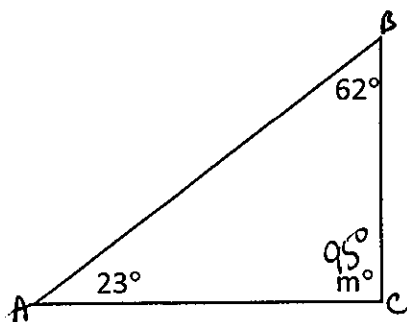
How to Solve for the Measure of the Missing Angle in a Triangle

Steps:

1. Find the Sum of the given angles.
2. Set the sum equal to 180° .
3. If given a variable, solve for the variable.
4. Substitute the value of the variable into the original expression to find the missing angle.

Practice - Solve for the measure of the missing angle in the diagrams below.

1)



$$23 + 62 + m = 180$$

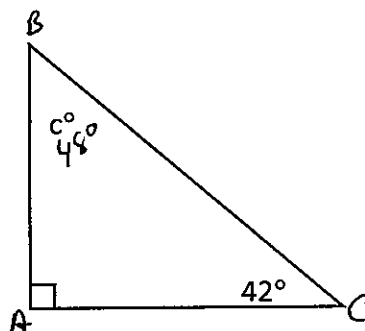
$$85 + m = 180$$

$$\begin{array}{r} -85 \quad -85 \\ \hline \end{array}$$

$$m = 95^\circ$$

(obtuse triangle)

2)



$$42 + 90 + c = 180$$

$$132 + c = 180$$

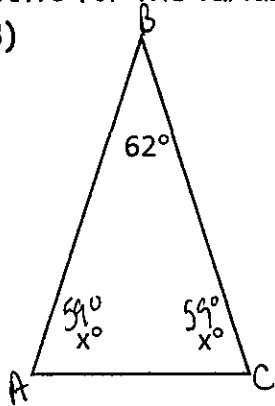
$$\begin{array}{r} -132 \quad -132 \\ \hline \end{array}$$

$$c = 48^\circ$$

(Right triangle)

Solve for the variable in the diagrams below.

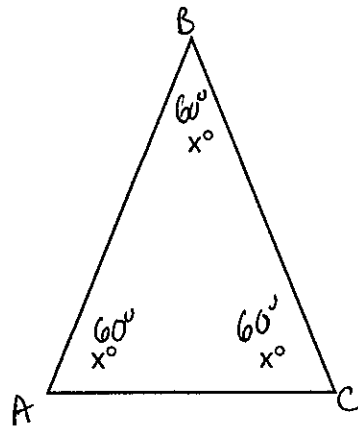
3)



$$\begin{aligned} x + x + 62 &= 180 \\ 2x + 62 &= 180 \\ \underline{-62 \quad -62} & \\ 2x &= 118 \\ \underline{\quad \quad 2} & \\ x &= 59 \end{aligned}$$

(Acute Isos Δ)

4)

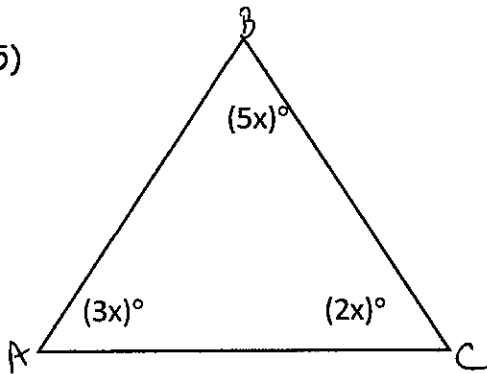


$$\begin{aligned} x + x + x &= 180 \\ 3x &= 180 \\ \underline{\quad \quad 3} & \\ x &= 60 \end{aligned}$$

(Equilateral Δ)

Solve for the variable and the measure of each angle in the diagrams below

5)



$$3x + 5x + 2x = 180$$

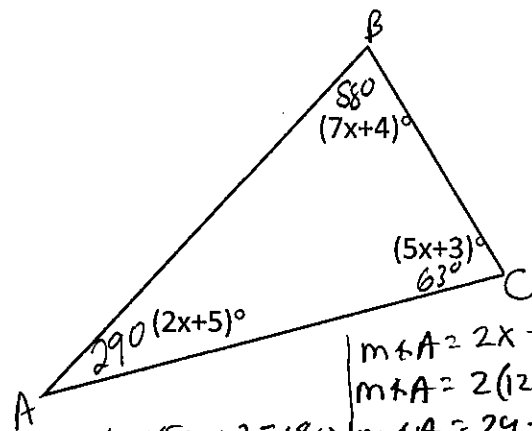
$$\frac{10x}{10} = \frac{180}{10}$$

$$x = 18$$

$m\angle A = 3x$	$m\angle B = 5x$	$m\angle C = 2x$
$m\angle A = 3(18)$	$m\angle B = 5(18)$	$m\angle C = 2(18)$
$m\angle A = 54^\circ$	$m\angle B = 90^\circ$	$m\angle C = 36^\circ$

(right Δ)

6)



$$2x + 5 + 7x + 4 + 5x + 3 + 63 = 180$$

$$14x + 12 = 180$$

$$\underline{-12 \quad -12}$$

$$\frac{14x}{14} = \frac{168}{14}$$

$$x = 12$$

(Acute Δ)

$$\begin{aligned} m\angle A &= 2x + 5 \\ m\angle A &= 2(12) + 5 \\ m\angle A &= 24 + 5 \\ m\angle A &= 29^\circ \end{aligned}$$

$$\begin{aligned} m\angle B &= 7x + 4 \\ m\angle B &= 7(12) + 4 \\ m\angle B &= 84 + 4 \\ m\angle B &= 88^\circ \end{aligned}$$

$$\begin{aligned} m\angle C &= 5x + 3 \\ m\angle C &= 5(12) + 3 \\ m\angle C &= 60 + 3 \\ m\angle C &= 63^\circ \end{aligned}$$