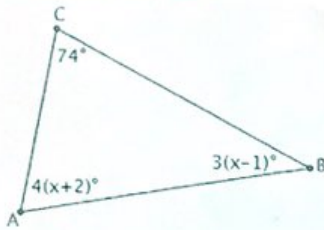


Properties of Triangles

1. Find
- $m\angle A$
- and
- $m\angle B$



$$74 + 4(x+2) + 3(x-1) = 180$$

$$74 + 4x + 8 + 3x - 3 = 180$$

$$7x + 79 = 180$$

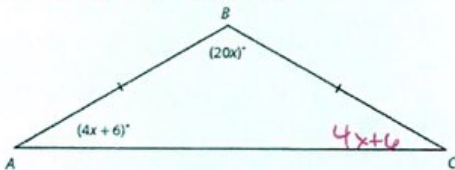
$$\quad -79 \quad -79$$

$$\frac{7x = 101}{7 \quad 7}$$

$$\boxed{x = 14.4 \quad \angle B = 40.2}$$

$$\angle A = 65.6$$

3. Find
- $m\angle A$
- ,
- $m\angle B$
- , and
- $m\angle C$



$$4x+6 + 4x+6 + 20x = 180$$

$$28x + 12 = 180$$

$$28x = 168$$

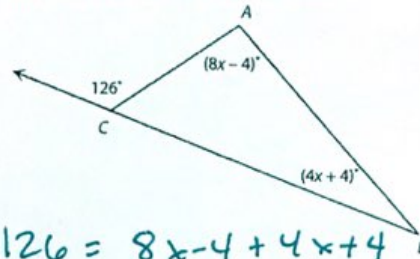
$$\boxed{x = 6}$$

$$\angle A = 30^\circ$$

$$\angle B = 120^\circ$$

$$\angle C = 30^\circ$$

2. Find
- $m\angle A$
- ,
- $m\angle B$
- , and
- $m\angle ACB$



$$126 = 8x - 4 + 4x + 4$$

$$126 = 12x$$

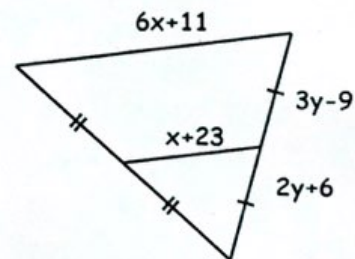
$$\boxed{x = 10.5}$$

$$\angle A = 80^\circ$$

$$\angle B = 46^\circ$$

$$\angle ACB = 54^\circ$$

4. Solve for
- x
- and
- y
- .



$$2(x+23) = 6x+11$$

$$2x+46 = 6x+11$$

$$-2x \quad -11 \quad -2x \quad -11$$

$$35 = 4x$$

$$\boxed{x = 8.75}$$

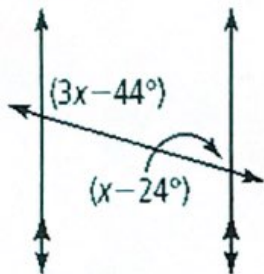
$$2y+6 = 3y-9$$

$$-2y \quad +9 \quad -2y \quad +9$$

$$\boxed{15 = y}$$

Review Problems:

5. Solve for x:



$$3x - 44 + x - 24 = 180$$

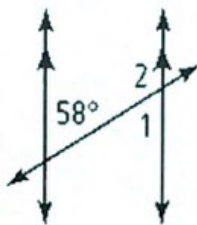
$$4x - 68 = 180$$

$$4x = 248$$

$$\frac{4x}{4} = \frac{248}{4}$$

$$x = 62$$

6. Solve for $\angle 1$ and $\angle 2$. Justify your answers.

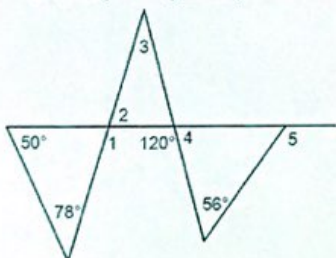


$\angle 1 = 58^\circ$ Alternate Interior \angle s
 $\angle 2 = 122^\circ$ Same Side Interior

$$\begin{array}{r} 58 + \angle 2 = 180 \\ -58 \quad -58 \\ \hline \angle 2 = 122 \end{array}$$

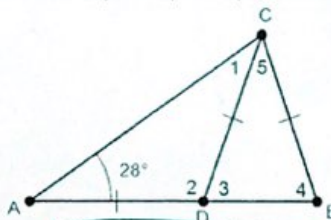
Extended Understanding:

7. Find $m\angle 1$, $m\angle 2$, $m\angle 3$, $m\angle 4$ and $m\angle 5$.



$$\begin{aligned} m\angle 1 &= 50 + 78 = 128^\circ \\ m\angle 2 &= 180 - 128 = 52^\circ \\ m\angle 3 &= 180 - m\angle 2 - m\angle 4 = 68^\circ \\ m\angle 4 &= 180 - 120 = 60^\circ \\ m\angle 5 &= m\angle 2 + m\angle 4 = 116^\circ \end{aligned}$$

8. Find $m\angle 1$, $m\angle 2$, $m\angle 3$, $m\angle 4$ and $m\angle 5$.



$$\begin{aligned} \angle 1 &= 28^\circ \\ \angle 2 &= 124 \\ \angle 3 &= 56 \\ \angle 4 &= 56 \\ \angle 5 &= 68^\circ \end{aligned}$$