

1.

Change to degrees and minutes.

a. $61\frac{2}{3}^\circ$
 $\rightarrow \times 60 \Rightarrow 61^\circ 40'$

b. 71.7°

$= 71\frac{7}{10}^\circ$
 $\rightarrow \times 60 \Rightarrow 71^\circ 42'$

2.

Change to fractional degrees.

a. $132^\circ 30'$
 $\leftarrow \div 60 \Rightarrow \frac{30}{60} = \frac{1}{2}$

$\therefore 132^\circ 30' = 132\frac{1}{2}^\circ$

b. $19^\circ 45'$
 $\leftarrow \div 60 \Rightarrow \frac{45}{60} = \frac{3}{4}$

$\therefore 19^\circ 45' = 19\frac{3}{4}^\circ$

4.

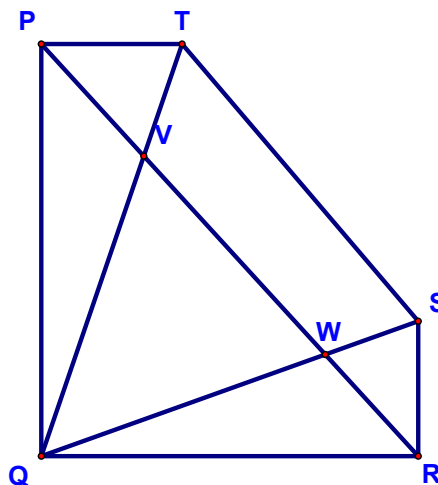
a. $\overrightarrow{QV} \cap \overleftrightarrow{TS} = T$

b. $\overline{WP} \cap \overline{VR} = \overline{VW}$

c. $\overrightarrow{WP} \cup \overrightarrow{VR} = \overleftrightarrow{PR}$

d. $\overrightarrow{SQ} \cup \overrightarrow{SR} = \angle QSR$

e. How many angles have vertex Q? **6**



5.

Evaluate:

a. $49^\circ 32' 55'' + 37^\circ 27' 15''$

$$\begin{array}{r} 49^\circ 32' 55'' \\ + 37^\circ 27' 15'' \\ \hline 86^\circ 59' 70'' = 86^\circ 60' 10'' = 87^\circ 10'' \end{array}$$

b. $123^\circ 15' - 40^\circ 26'$

$$\begin{array}{r} 123^\circ 15' 00'' \\ - 40^\circ 26' 00'' \\ \hline 82^\circ 49' 00'' = 82^\circ 49' \end{array}$$

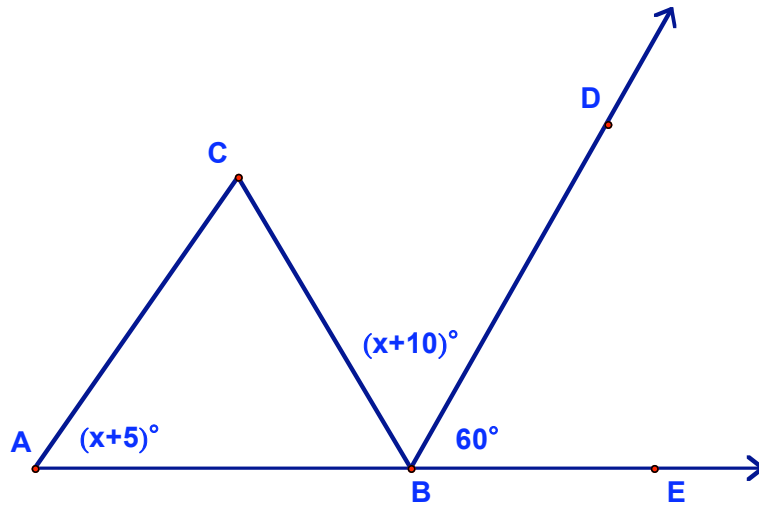
8.

If $\angle CBD \cong \angle DBE$, find $m\angle A$

$$x + 10 = 60$$

$$\Rightarrow x = 50$$

$$\therefore m\angle A = x + 5 = 55^\circ$$



9.

Find the measure of the angle formed by the hands of a clock at the following times:

a. 3:00 90°

b. 4:30 45°

c. 7:20 100°

d. 1:45 142.5°

10.

Using the number line shown:

a. Find PQ

$$3 - (-2) = 5 \text{ units}$$

b. If R's coordinate is 7, why is \overline{PQ} not $\cong \overline{QR}$?

Because QR would be 4 units and PQ is 5 units

c. What must the coordinate of R be in order for Q to be the midpoint of \overline{PR} ?

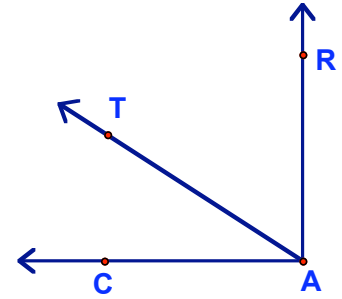
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11.

$\angle CAR$ is a right angle and $m\angle CAT = 37^\circ 66' 10''$

Find $m\angle RAT$



$$\begin{array}{r} 90^\circ 00' 00'' \\ - 37^\circ 66' 10'' \\ \hline \end{array} \Rightarrow \begin{array}{r} 88^\circ 119' 60'' \\ - 37^\circ 66' 10'' \\ \hline 51^\circ 53' 50'' = m\angle RAT \end{array}$$

15.

Given: $\angle 1 \cong \angle 2$
 $m\angle 1 = x + 14$
 $m\angle 2 = y - 3$

Since $\angle 1 \cong \angle 2$, we can say

$$x + 14 = y - 3$$

Find y in terms of x

$$\Rightarrow x + 17 = y$$

16.

If $\angle POA$ is a right angle and $\angle POC$ is 3 times as large as $\angle COA$, find $m\angle POC$.

If $m\angle COA = x$, then $m\angle POC = 3x$.

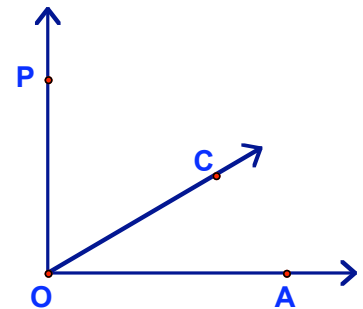
Since $\angle POA$ is a right \angle , we can say:

$$3x + x = 90^\circ$$

$$\Rightarrow 4x = 90$$

$$\Rightarrow x = 22.5$$

$$\therefore m\angle POC = 3(22.5) = 67.5^\circ$$

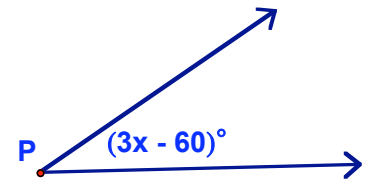


17.

Using the diagram shown and the fact that $\angle P$ is acute,

a. What are the restrictions on $m\angle P$?

$$0 < m\angle P < 90$$



b. What are the restrictions on x ?

$$0 < 3x - 60 < 90$$

$$60 < 3x < 150$$

$$20 < x < 50$$

20.

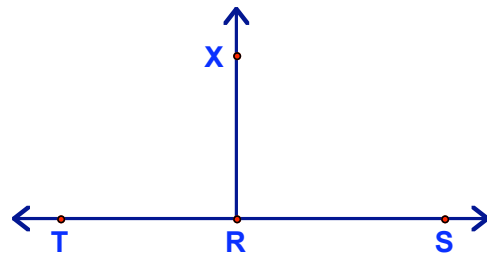
Change $15\frac{2}{9}^\circ$ to degrees, minutes, and seconds

$$\begin{aligned}
 & \times 60 \Rightarrow 15^\circ \frac{120}{9}' = 15^\circ 13\frac{1}{3}' \\
 & \times 60 \Rightarrow 15^\circ 13' 20''
 \end{aligned}$$

21.

Given: $\angle TRS$ is a straight angle
 $\angle TRX$ is a right angle
 $m\angle TRS = 2x + 5y$
 $m\angle XRS = 3x + 3y$

Solve for x and y .



$$2x + 5y = 180^\circ \quad \longrightarrow \quad 6x + 15y = 540$$

$$3x + 3y = 90^\circ \quad \longrightarrow \quad - 6x + 6y = 180$$

$$9y = 360$$

$$\Rightarrow y = 40$$

$$\Rightarrow x = -10$$

23.

Change $72^\circ 22' 30''$ to fractional degrees.

$$\swarrow \div 60 \Rightarrow \frac{30}{60} = \frac{1}{2}$$

$$\therefore 72^\circ 22' 30'' = 72^\circ 22 \frac{1}{2}' = 72^\circ \frac{45}{2}'$$

$$\swarrow \div 60 \Rightarrow \left(\frac{45}{2}\right) \left(\frac{1}{60}\right) = \frac{45}{120} = \frac{3}{8}$$

$$\therefore 72^\circ \frac{45}{2}' = 72 \frac{3}{8}^\circ$$