Section 1.2 p. 14: #1, 2, 4, 5, 8- 11, 14-21, 23

1) Change to degrees and minutes

a) $61\frac{2}{3}^\circ$

$\frac{2}{3}^\circ \cdot \frac{60'}{1^\circ} = \frac{120'}{3} = 40'$

$61^\circ 40'$

b) 71.7°

$.7^\circ \cdot \frac{60'}{1^\circ} = 42'$

$71^\circ 42'$

2) Change each of the following to degrees:

a) $132^\circ 30'$

$30' \cdot \frac{1^\circ}{60'} = \frac{1}{2}^\circ$

$132\frac{1}{2}^\circ$

b) $19^\circ 45'$

$45' \cdot \frac{1^\circ}{60'} = \frac{3}{4}^\circ$

$19\frac{3}{4}^\circ$

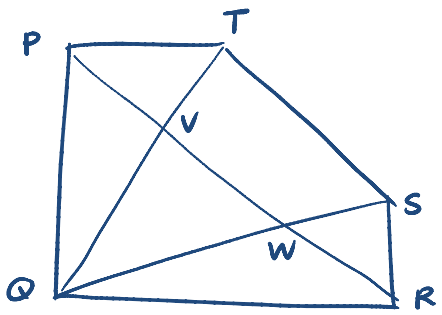
4. a. $\overrightarrow{QV} \cap \overleftrightarrow{TS}$ T

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) a)
$$\begin{array}{r} 49^\circ\ 32'\ 55'' \\ +\ 37^\circ\ 27'\ 15'' \\ \hline 86^\circ\ 59'\ 70'' \end{array}$$

$86^\circ\ 60'\ 10''$

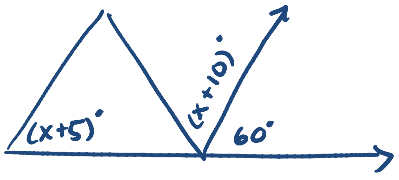
$87^\circ 10''$

b)
$$\begin{array}{r} 123^\circ\ 15' \\ -\ 40^\circ\ 26' \\ \hline \end{array} \Rightarrow \begin{array}{r} 122^\circ\ 75' \\ -40^\circ\ 26' \\ \hline 82^\circ 49' \end{array}$$

8) If $\angle CBD \cong \angle DBE$
Find $m\angle A$

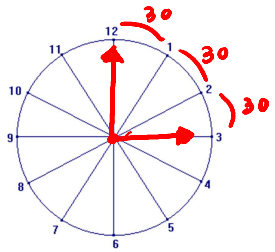
$x + 10 = 60$
$x = 50$

$m\angle A = x + 5$
$= 50 + 5$
$m\angle A = 55^\circ$



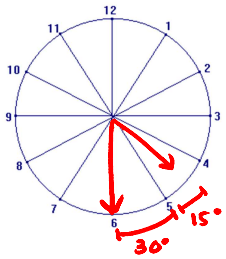
#9 Find the measure of the angle formed by the hands of a clock at each time.

a. 3:00



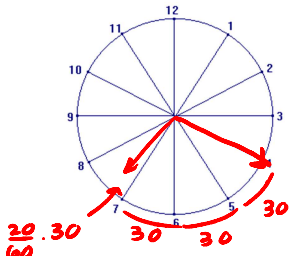
90

b. 4:30



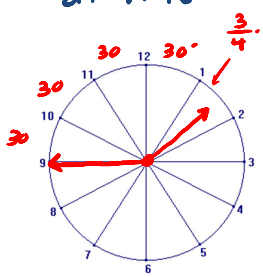
45

c. 7:20



100

d. 1:45



142.5

#10

a. Find PQ 5

b. If R's coordinate is 7, why is $\overline{PQ} \not\cong QR$? $\overline{QR} = 4$

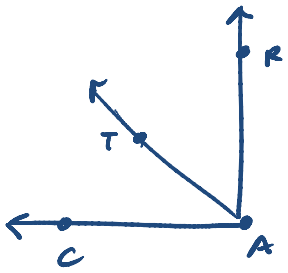
$\overline{PQ} \neq \overline{QR}$

c. What must the coordinate of R be in order for Q to be the midpt of $\overline{PR}$ 8

#11 Given: ∠CAR is a right ∠

m∠CAT is 37°66'10"

Find: m∠RAT



$90 - 37°66'10" \Rightarrow 89°59'60" - 38°6'10"$

51°53'50"

14) $\overline{XS} \cong \overline{YT}$, $\overline{YS} \cong \overline{XT}$

$3m + 7 = 4.2m + 5$

$\frac{2}{1.2} = \frac{1.2m}{1.2}$

$m = \frac{5}{3}$

$3\frac{1}{2}r + 2 = 2r + 5$

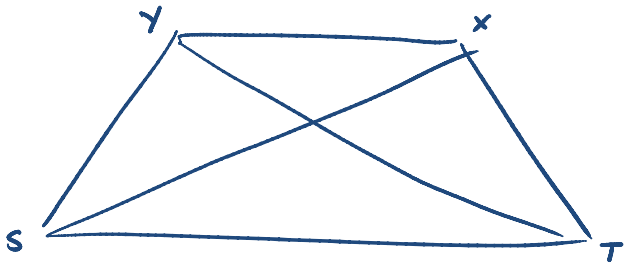
$3\frac{1}{2}r = 2r + 3$

$-2r \quad -2r$

$1\frac{1}{2}r = 3$

$\frac{3}{2}r = 3$

$r = 2$



15) $\angle 1 \cong \angle 2$

$m\angle 1 = x+14$

$m\angle 2 = y-3$

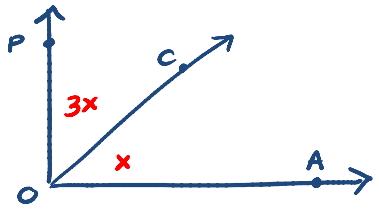
Solve for y in terms of x.

$x+14 = y-3$

$+3 \quad +3$

$\boxed{x+17 = y}$

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



$3x + x = 90$

$4x = 90$

$x = 22.5$

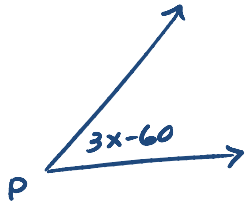
$m\angle POC = 3(22.5)$

$= \boxed{67.5}$

17. $\angle P$ is acute

a. What are the restrictions on $m\angle P$? $0 < m\angle P < 90$

b. What are the restrictions on x?



$0 < 3x-60 < 90$

$60 < 3x < 150$

$\boxed{20 < x < 50}$

18. The hand is at 12 on the clock

a. If the hand were rotated 90° clockwise at what number would it point? [3]

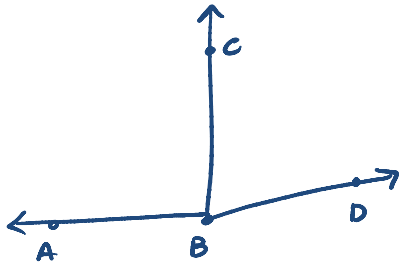
b. If the hand were rotated clockwise 150° and then 30° counterclockwise, at what num would it point? [4]

#19 $\angle ABC$ and $\angle CBD$ have the same measure.

If $\angle ABC = \left(\frac{3x}{2}+2\right)^\circ$ 95.75°

$\angle CBD = (2x - 29\frac{1}{4})^\circ$ 95.75°

} + {191.5° NO!



Is $\angle ABD$ a straight $\angle$?

$\frac{3x}{2} + 2 = 2x - 29.25$

$31.25 = \frac{1}{2}x$

$62.5 = x$

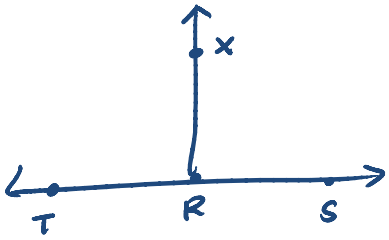
#20 Change $15\frac{2^\circ}{9}$ to degrees, minutes, and seconds.

Change $\frac{2^\circ}{9}$ to $'$ $\quad \frac{2^\circ}{9} \cdot \frac{60'}{1^\circ} = \frac{120'}{9} = 13\frac{1}{3}'$

Change $\frac{1}{3}'$ to $''$ $\quad \frac{1'}{3} \cdot \frac{60''}{1'} = \frac{60''}{3} = 20''$

$15^\circ 13' 20''$

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



Solve for x and y

$\rightarrow (2x+5y = 180) \Rightarrow -6x-15y = -540$
$2(3x+3y = 90) \Rightarrow \quad 6x+6y = 180$
$-9y = -360$
$y = 40$

$3x+3(40) = 90$
$3x+120 = 90$
$3x = -30$
$x = -10$

$x = -10$
$y = 40$

#23 Change $72^\circ 22' 30''$ to degrees

Change $'' \rightarrow '$ $\quad 30'' \cdot \frac{1'}{60''} = \frac{1}{2}'$

$72^\circ 22\frac{1}{2}'$

Change $' \rightarrow ^\circ$ $\quad 22.5' \cdot \frac{1^\circ}{60'} = \frac{3}{8}^\circ$

$72\frac{3}{8}^\circ$