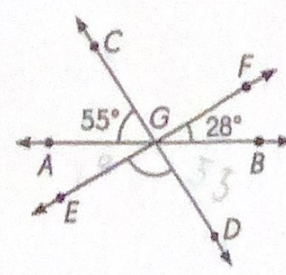**Name:** _LO2_   **Date:** _4-24-2021_

Lesson 12.3 Vertical Angles

Find the unknown marked angles. The diagrams are not drawn to scale.

1. $\overleftrightarrow{AB}$, $\overleftrightarrow{CD}$, and $\overleftrightarrow{EF}$ meet at G. Find the measure of $\angle DGE$.

$DGE = 97$

$\begin{array}{r} 55 \\ + 28 \\ \hline 83 \end{array}$
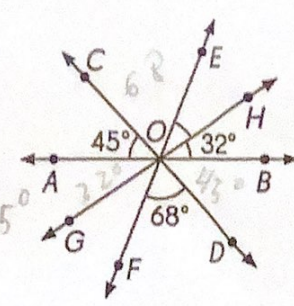

The measure of $\angle DGE = 97°$

2. $\overleftrightarrow{AB}$, $\overleftrightarrow{CD}$, $\overleftrightarrow{EF}$, and $\overleftrightarrow{GH}$ meet at O. Find the measure of $\angle EOH$.

$\angle EOH = 35°$

$\begin{array}{r} 45 \\ + 68 \\ \hline 113 \\ + 32 \\ \hline 145 \end{array}$

$180 - 145 = 35°$

The measure of $\angle EOH = 25°$
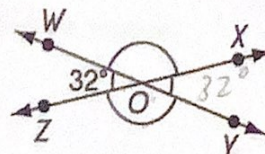
4. $\overleftrightarrow{WY}$ and $\overleftrightarrow{XZ}$ are lines.
Find the measures of $\angle YOZ$ and $\angle WOX$.

m$\angle YOZ$ = ___143°___

m$\angle WOX$ = ___148°___
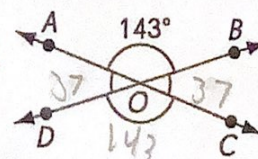
W
X
32°
O
32°
Z
Y

$180-32=148$

$148°$

5. $\overleftrightarrow{AC}$ and $\overleftrightarrow{BD}$ are lines.
Find the measures of $\angle AOD$, $\angle COD$, and $\angle BOC$.

m$\angle AOD$ = ___37°___

m$\angle COD$ = ___143°___

m$\angle BOC$ = ___37°___

A   143°   B
37
O
37
D   143   C

$180-143=37$

3. $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ meet at E and $\overrightarrow{EF}$ is perpendicular to $\overleftrightarrow{CD}$. Find the measure of ∠AEF.

180-52=128

128°

AED = 52°
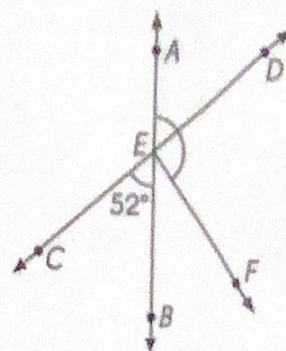
EJF = 52°

AEf = 128

the meosure of AEF = 128°

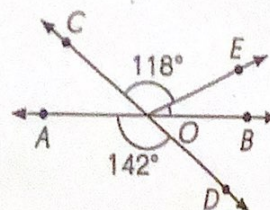4. $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ meet at O. Find the measure of ∠BOE.

180-156 = 24°

DB = 38°

OJE = 38°

EOB = 24

the mleasure of BoE = 24°

6. Find the measure of ∠x.

$$20-166-224-90=134-42=92°$$

92°

The measure of ∠x = 92°

(Figure: angles around a point, 136°, 42°, 90°, right angle, ∠x)
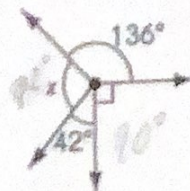
7. $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are lines. Find the measure of ∠x.

$$86-28=58$$

The measure ∠x = 58°

(Figure: lines AB and CD through O, with 58°, 86°, 28°, 50° marked)

8. $\overleftrightarrow{PS}$, $\overleftrightarrow{QT}$, and $\overleftrightarrow{RV}$ are lines.
Find the measures of ∠UOV, ∠TOU, and ∠SOT.

$$180-100=80$$

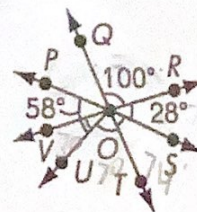$$80-28=52$$

$$58-28=30$$

$$68+70=128$$

$$180-128=52°$$

the measures of ∠Sot = 52°

(Figure: lines PS, QT, RV through O, with 100°, 58°, 28° marked, points P, Q, R, V, U, T, S)

The measures of ∠UOV = 30°
The measures of ∠ TOU = 70°