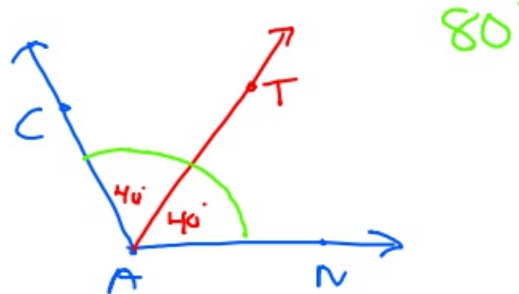


8-29-19 2nd Geo

- ① \overrightarrow{AT} bisects $\angle CAN$.
 $\angle CAT = 40^\circ$. What is $\angle CAN$?



- ② \overrightarrow{TX} bisects $\angle ATB$.
If $\angle ATB = 4n + 10$, what is $\angle ATX$? $2n + 5$



- ③ $\angle 1$ and $\angle 2$ are vertical angles. $\angle 1 = 6n - 4$ and $\angle 2 = 4n + 10$. What is n ?

$$\begin{aligned} \angle 1 &= \angle 2 \\ \downarrow & \quad \downarrow \\ 6n - 4 &= 4n + 10 && \text{B.S.} \\ -4n & \quad -4n \\ \hline 2n - 4 &= 10 \\ +4 & \quad +4 \\ \hline 2n &= 14 \\ n &= 7 \end{aligned}$$

- ④ $\angle 1$ and $\angle 2$ are vertical angles. If $\angle 1 = 5n - 1$ and $\angle 2 = 4n + 7$, what is $\angle 1$?

$$\begin{array}{r} \angle 1 = \angle 2 \\ 5n - 1 = 4n + 7 \\ \underline{-4n \quad -4n} \quad \text{B.S.} \\ n - 1 = 7 \\ \underline{+1 \quad +1} \\ n = 8 \end{array}$$

$n = 8$

$$\begin{aligned} \angle 1 &= 5 \cdot n - 1 \\ &= 5 \cdot 8 - 1 \\ &= 40 - 1 \\ &= 39 \end{aligned}$$

- ⑤ $\angle 1$ and $\angle 2$ are complementary angles. $\angle 1 = 3n$ and $\angle 2 = 7n - 10$. Find n .

$$\begin{array}{r} \angle 1 + \angle 2 = 90^\circ \\ \downarrow \quad \downarrow \\ 3n + 7n - 10 = 90^\circ \end{array}$$

$$\begin{array}{r} 10n - 10 = 90 \\ \underline{+10 \quad +10} \end{array}$$

$$\frac{10n}{10} = \frac{100}{10}$$

$$n = 10$$

⑥ $\angle 1$ and $\angle 2$ are Supplementary.

If $\angle 1 = 6n + 10$ and

$\angle 2 = 4n - 30$, what is n ?

$$\angle 1 + \angle 2 = 180^\circ$$

$$\begin{array}{ccc} \downarrow & & \downarrow \\ 6n + 10 & + & 4n - 30 = 180^\circ \end{array}$$

$$10n - 20 = 180^\circ$$

$$\begin{array}{r} 10n - 20 = 180^\circ \\ + 20 \quad + 20 \\ \hline 10n = 200 \end{array}$$

$$\frac{10n}{10} = \frac{200}{10}$$
$$n = 20$$

⑦ $\angle 1$ and $\angle 2$ are a linear pair. $\angle 1 = n + 50$ and $\angle 2 = 9n + 30$. What is $\angle 1$?



$$\angle 1 + \angle 2 = 180^\circ$$

$$\begin{array}{ccc} \downarrow & & \downarrow \\ n + 50 & + & 9n + 30 = 180^\circ \end{array}$$

$$10n + 80 = 180^\circ$$

$$\begin{array}{r} 10n + 80 = 180^\circ \\ - 80 \quad - 80 \\ \hline 10n = 100 \end{array}$$

$$\frac{10n}{10} = \frac{100}{10}$$
$$n = 10$$

$$\angle 1 = n + 50^\circ$$

$$= 10 + 50^\circ$$

$$= 60^\circ$$

- ⑧ $\angle 1$ and $\angle 2$ are vertical angles. If $\angle 1 = 4n - 10$ and $\angle 2 = 2n + 4$, what is $\angle 1$?

$$\begin{aligned}\angle 1 &= \angle 2 \\ 4n - 10 &= 2n + 4 \\ -2n & \quad -2n \\ \hline 2n - 10 &= 4 \\ +10 & \quad +10 \\ \hline 2n &= 14 \\ n &= 7\end{aligned}$$

$$\begin{aligned}\angle 1 &= 4n - 10 \\ 4 \cdot 7 - 10 \\ 28 - 10 \\ 18\end{aligned}$$

- ⑨ \overrightarrow{BX} bisects $\angle ABC$. If $\angle ABX = 40^\circ$, what is $\angle XBC$?
- 40°

