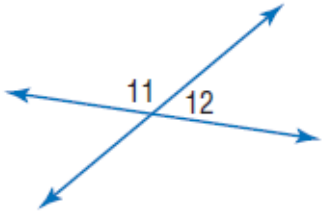Angle Relationships: Mixed Review Homework#2
Directions: Show your geometry and justifications and then solve.
1. Find m<12.

$m\angle 11 = 4x,$
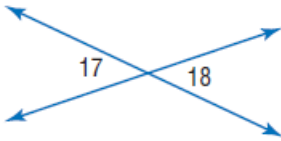$m\angle 12 = 2x - 6$

2. Find m<17.
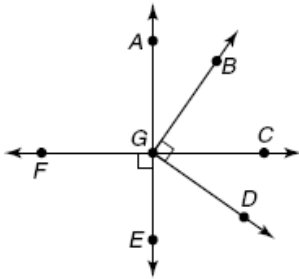
$m\angle 17 = 2x + 7,$
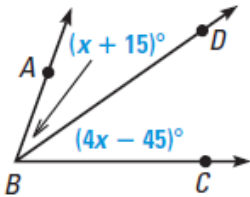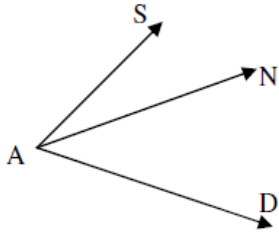$m\angle 18 = x + 30$

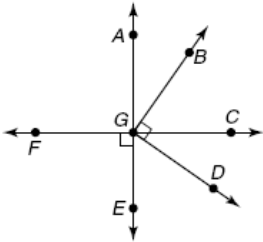3. If $m < BGC = 16x - 4, m < CGD = 2x + 13$ $\overline{BG} \perp \overline{GD}$, find x.

4. $\overrightarrow{BD}$ bisects $\angle ABC$. Find the value of x.

5. Find x and the $m\angle SAD$ if $m\angle SAD = 16x - 2, m\angle SAN = 9x - 7, and \ m\angle DAN = 3x + 17.$

6. If $m < FGE = 5x + 10$ and $\overrightarrow{FC} \perp \overrightarrow{AE}$, find x.

7. Two angles are complementary. The measure of one angle is 21 more than twice the measure of the other angle. Find the measures of both angles.

8. The measure of the supplement to <A is 60 less than three times the measure of the complement to <A.

9. Rays PQ and QR form a right angle. Point S lies in the interior of <PQR. If $< PQR = 4 + 7a$ and $< SQR = 9 + 4a,$ find the measures of <PQS and <SQR.

10. **In the figure, $\overrightarrow{YX} \ and \ \overrightarrow{YZ}$ are opposite rays. $\overrightarrow{YU}$ bisects $< ZYW$, and $\overrightarrow{YT}$ bisects $< XYW$.** If $m < ZYU = 8p - 10$ and $m < UYW = 10p - 20$, find $m < ZYU$.