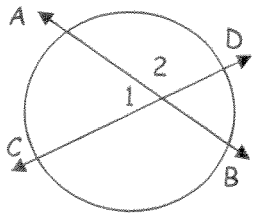
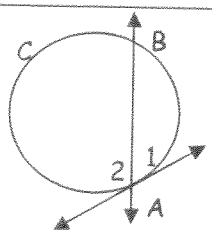
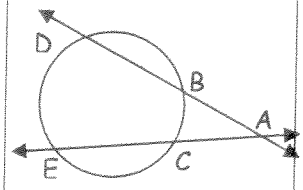
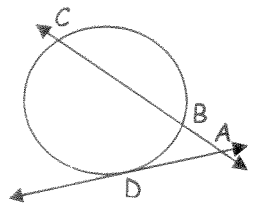
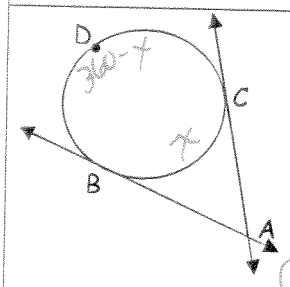
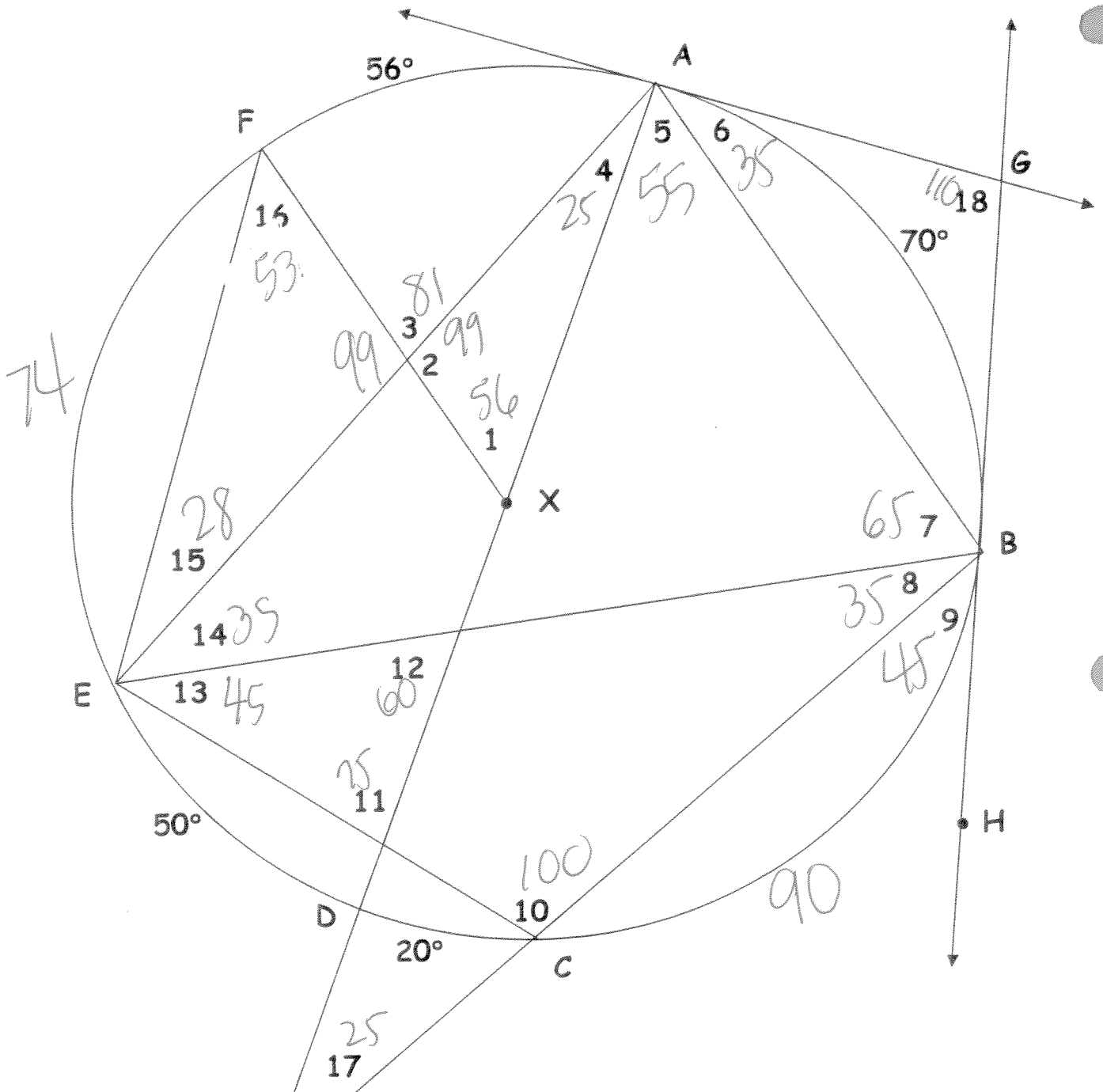
10-6 Secants, Tangents, & Angle Measures

DIAGRAM:	TERMINOLOGY AND THEOREMS:	EXAMPLES:
	**Secant:** a line that intersects a circle in exactly 2 points. The measures of angles formed by secants and tangents are related to intercepted arcs.	
	If 2 secants intersect in the interior of a circle, then the measure of an angle formed is half the sum of the measure of the arcs intercepted by the angle and its vertical angle.	$m\angle 1 = \frac{1}{2}(m\overset{\frown}{AC} + m\overset{\frown}{BD})$ $m\angle 2 = \frac{1}{2}(m\overset{\frown}{AD} + \overset{\frown}{BC})$
	If a secant and a tangent intersect at the point of tangency, then the measure of each angle is one-half the measure of its intercepted arc. ****It "acts like" an inscribed angle.	$m\angle 1 = \frac{1}{2}(m\overset{\frown}{AB})$ $m\angle 2 = \frac{1}{2}(m\overset{\frown}{ACB})$ or $m\angle 2 = 180° - m\angle 1$
	If 2 secants intersect in the exterior of a circle, then the measure of the angle formed is one-half the difference of the measure of the intercepted arcs.	$m\angle A = \frac{1}{2}(m\overset{\frown}{DE} - m\overset{\frown}{BC})$
	If a secant and a tangent intersect in the exterior of a circle, then the measure of the angle formed is one-half the difference of the measure of the intercepted arcs.	$m\angle A = \frac{1}{2}(m\overset{\frown}{CD} - m\overset{\frown}{BD})$
	If two tangents intersect in the exterior of a circle, then the measure of the angle formed is one-half the difference of the measure of the intercepted arcs. **Can also be found by subtracting the small arc from 180°*	$m\angle A = \frac{1}{2}(m\overset{\frown}{BDC} - m\overset{\frown}{BC})$ $\frac{1}{2}(360-x-x)$ $\frac{1}{2}(360-2x)$ $(180-x)$
SUMMARY OF FORMULAS:	1. Central Angle (vertex at center of the circle) = $\overset{\frown}{\quad}$ 2. Inscribed Angle (vertex on the circle) = $\frac{1}{2}\overset{\frown}{\quad}$ 3. "Inside Angle" (vertex inside the circle) = $\frac{1}{2}(\overset{\frown}{\quad} + \overset{\frown}{\quad})$ 4. "Outside Angle" (vertex outside the circle) = $\frac{1}{2}(\overset{\frown}{\quad} - \overset{\frown}{\quad})$	

Given: ⊙X with diameter $\overline{AD}$ and tangents $\overline{BH}$ and $\overline{AG}$. **Find the measures of all 18 angles.**



m∠1 = _____

m∠2 = _____

m∠3 = _____

m∠4 = _____

m∠5 = _____

m∠6 = _____

m∠7 = _____

m∠8 = _____

m∠9 = _____

m∠10 = _____

m∠11 = $\frac{1}{2}(20+130)$

m∠12 = $\frac{1}{2}(50+70)$

m∠13 = _____

m∠14 = _____

m∠15 = _____

m∠16 = _____

m∠17 = _____

m∠18 = _____