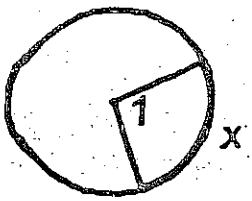
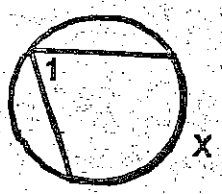
KEY IDEAS FOR CIRCLES:

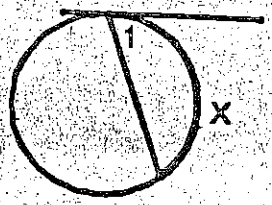
1. If a line is perpendicular to a radius of a circle at a point on the circle, then the line is tangent to the circle.
2. If a line is tangent to a circle, then it is perpendicular to the radius at the point of tangency.
3. In the same circle or congruent circles:
   a. Congruent chords have congruent minor chords.
   b. Congruent minor arcs have congruent chords and congruent central angles.
   c. Congruent chords are equidistant from the center
   d. Chords equidistant from the center are congruent.
4. If a diameter is perpendicular t a chord, then it bisects the chord and its minor and major arcs
5. If two inscribed angles intercept the same arc, then the angles are congruent.
6. The following are angle-arc relationships.



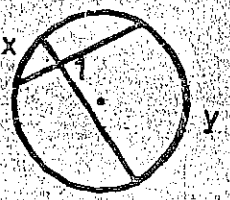
$m\angle 1 = x°$



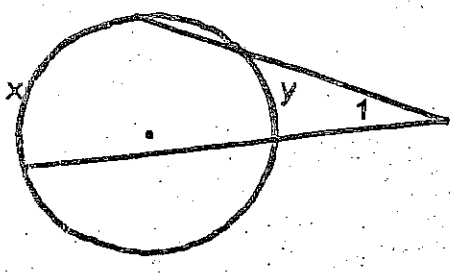
$m\angle 1 = \frac{1}{2}x°$



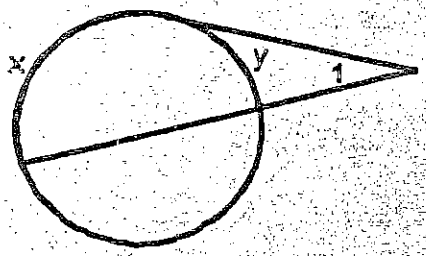
$m\angle 1 = \frac{1}{2}x°$



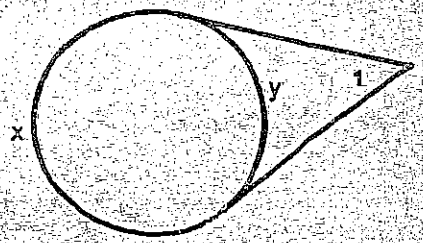
$m\angle 1 = \frac{1}{2}(x° + y°)$



$m\angle 1 = \frac{1}{2}(x° - y°)$

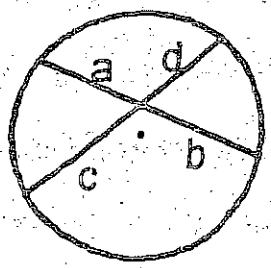


$m\angle 1 = \frac{1}{2}(x° - y°)$

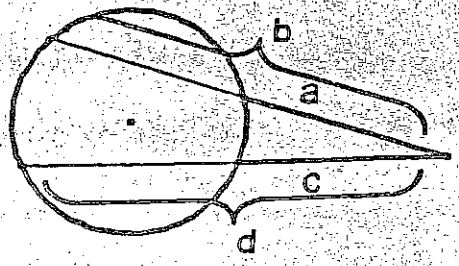


$m\angle 1 = \frac{1}{2}(x° - y°)$

7. The following are chord, secant and tangent relationships:

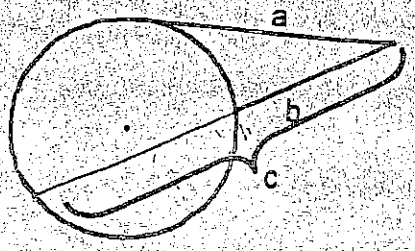


$a * b = c * d$



$a * b = c * d$

*Outside*whole = outside*whole*



$a^2 = b * c$

*tan² = outside*whole*