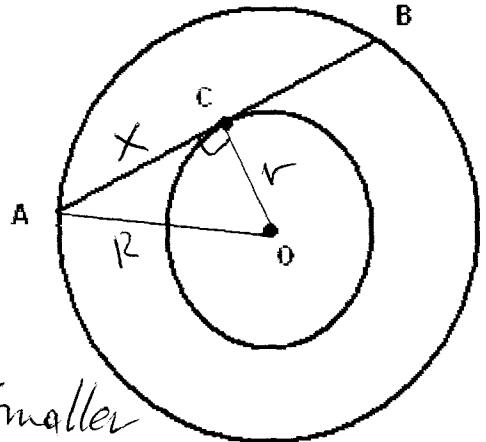


Geometry Worksheet: Area (6)

1. The large and the small circles are concentric with center at point O. Chord AB is tangent to the smaller circle at point C. Express the area of the ring between the two circles in terms of the length of segment AC.

let $AC = x$, r the radius of the small circle and R the radius of larger circle



Since AB is tangent to smaller circle \Rightarrow OC is perpendicular to AB.

Pythagora theorem:

$$x^2 + r^2 = R^2 \Rightarrow R^2 - r^2 = x^2$$

The area A_r of the ring is given by

$$A_r = \pi R^2 - \pi r^2 = \pi (R^2 - r^2) = \underline{\underline{\pi x^2}}$$