



$$\text{RADIUS} = x + 6 = r \rightarrow x = r - 6$$

$$x^2 + \left(\frac{96}{2}\right)^2 = r^2$$

$$x^2 + 48^2 = r^2$$

$$(r - 6)^2 + 48^2 = r^2$$

$$\cancel{r^2} - 12r + 36 + 48^2 = \cancel{r^2}$$

$$12r = 36 + 48^2 \Rightarrow$$

$$\boxed{r = 195}$$