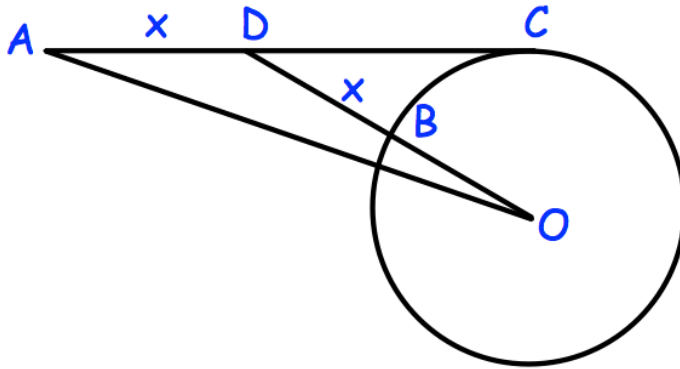


October 13th

A circle, centre O, has radius 6cm. Tangent AC = 8cm

AD = BD = x

Find x.



$AO = 10\text{cm}$ (Pythagoras)

$$\cos \hat{CAO} = \frac{8}{10} = \frac{4}{5}$$

cosine rule in triangle ADO gives

$$\cos \hat{CAO} = \frac{10^2 + x^2 - (x + 6)^2}{2 \times 10 \times x} = \frac{4}{5}$$

$$\frac{64 - 12x}{20x} = \frac{4}{5}$$

$$320 - 60x = 80x$$

$$x = \frac{320}{140} = \mathbf{\frac{16}{7} \text{ cm}}$$