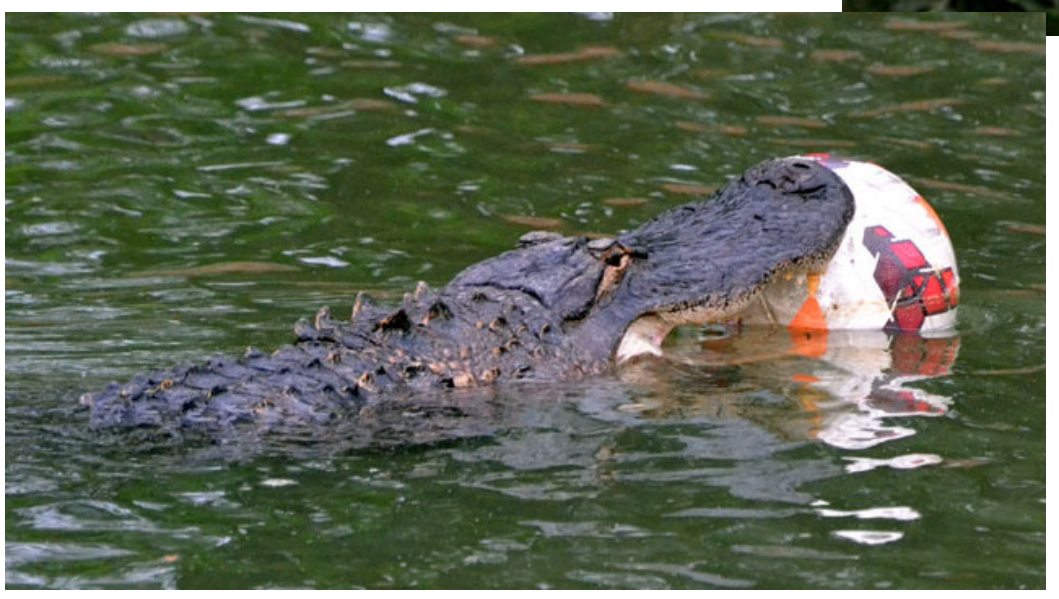


How big is the croc's mouth?

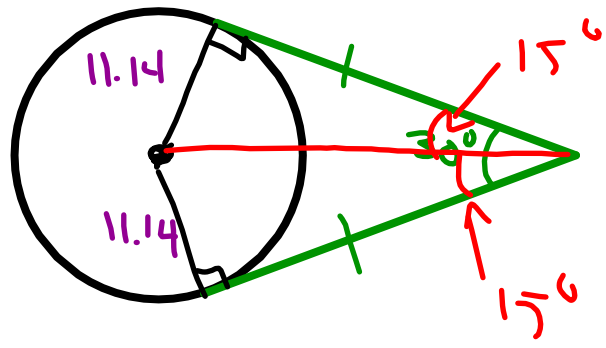
Problem Solving with Circle Properties

Example 1: A crocodile is holding a soccer ball in its mouth. The ball has a circumference of 70cm and the angle of the croc's jaw is 30°. How long the the croc's mouth?

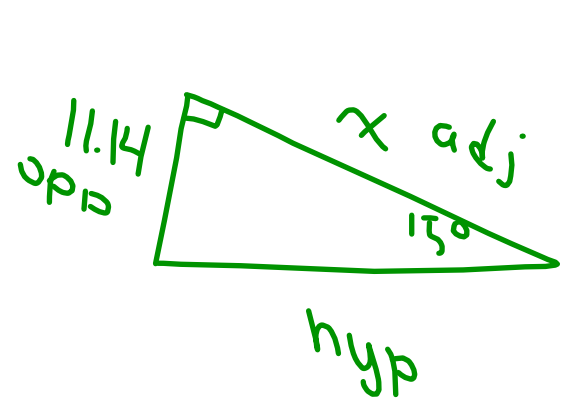
$C = 2\pi r$

$\frac{70}{2\pi} = \frac{2\pi r}{2\pi}$

$11.14 = r$



$\tan\theta = \frac{opp}{adj}$



$\tan 15 = \frac{11.14}{x}$

$0.2679 = \frac{11.14}{x}$

$\frac{0.2679x}{0.2679} = \frac{11.14}{0.2679}$

$x = 41.58\ cm$

http://www.youtube.com/watch?v=kZS4UsOHmLE

Example 2: A toy car, attached to a 1.5m tether, is spun around and around to gain speed. Where should the car be released to hit a target 10m from the center of the circle?

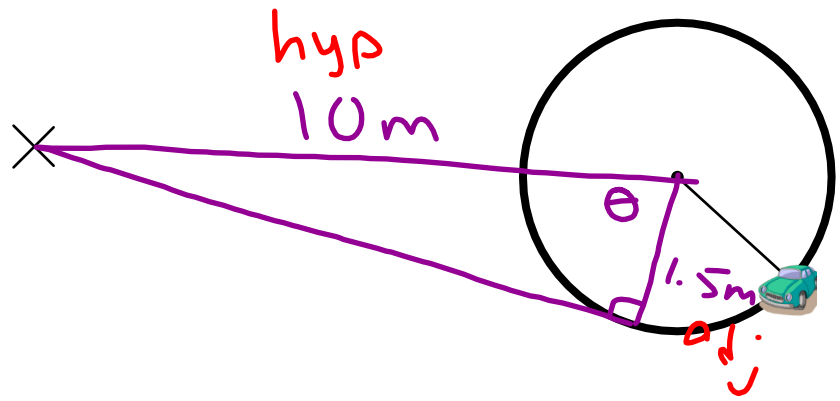
$$\cos\theta = \frac{adj}{hyp}$$

$$\cos\theta = \frac{1.5}{10}$$

$$\cos\theta = 0.15$$

$$\theta = \cos^{-1} 0.15$$

$$\theta = 81.4^\circ$$



∴ The car should be released 81.4° before the line.

<u>Practice</u>: pg. 154 # 9 - 13