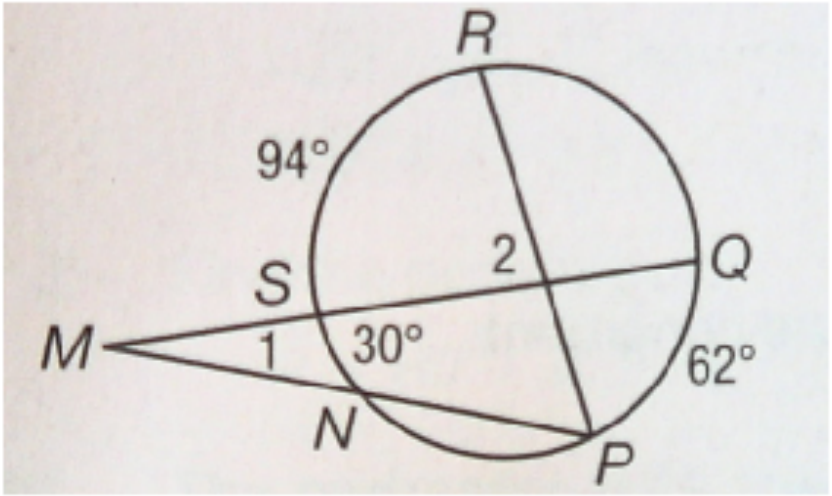
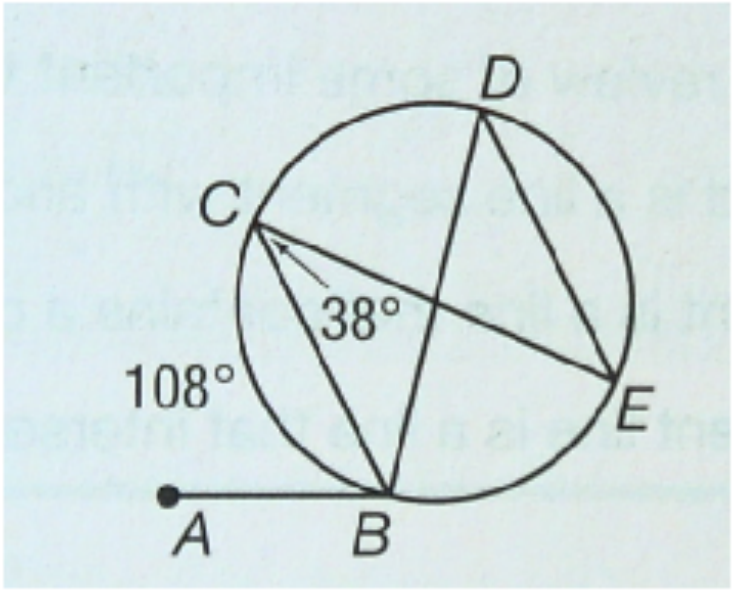
Warm-Up





1. $m\angle 1$ **16°**

2. $m\angle 2$ **78°**

3. $m\angle ABC$ **54°**

4. *measure of arc BE* **76°**

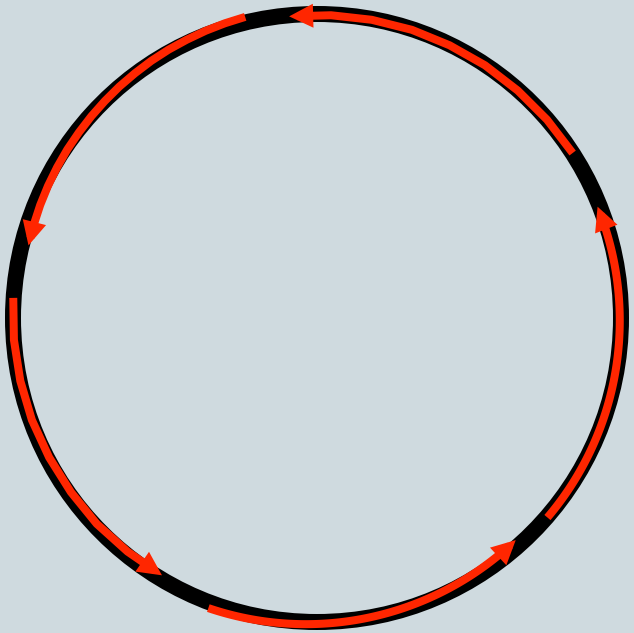
5. $m\angle BDE$ **38°**

Day 27 – Arc Length & Circumference

ANALYTIC GEOMETRY FOR COLLEGE GRADUATES

Circumference

THE DISTANCE AROUND A CIRCLE



2 Types of Answers

Rounded

- Type the Pi button on your calculator
- Toggle your answer
- Do NOT write Pi in your answer

Exact

- Pi will be in your answer

Circumference

$$C = 2\pi r$$

or

$$C = \pi d$$

Find the EXACT circumference.

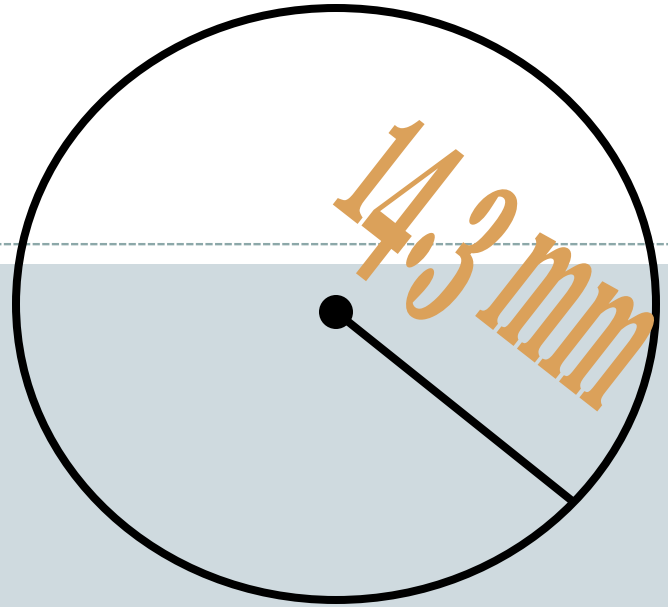
1. r = 14 feet

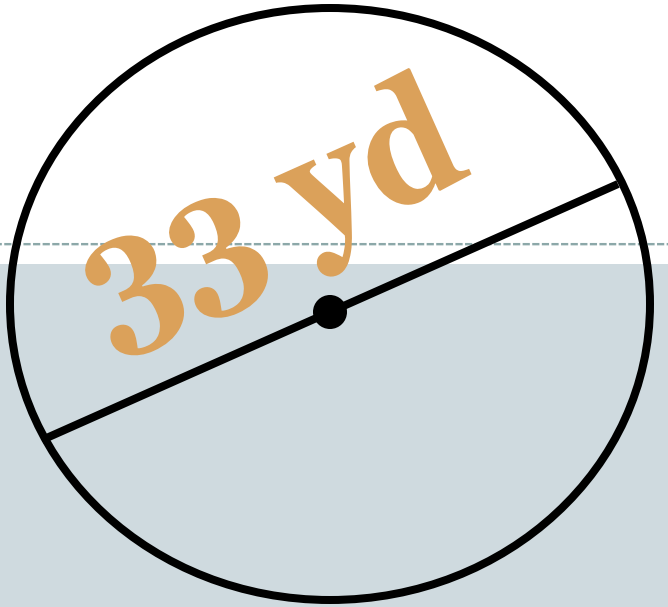
28π ft

2. d = 15 miles

15π miles

Ex 3 and 4: Find the circumference. Round to the nearest tenths.





89.8 mm

103.7 yd

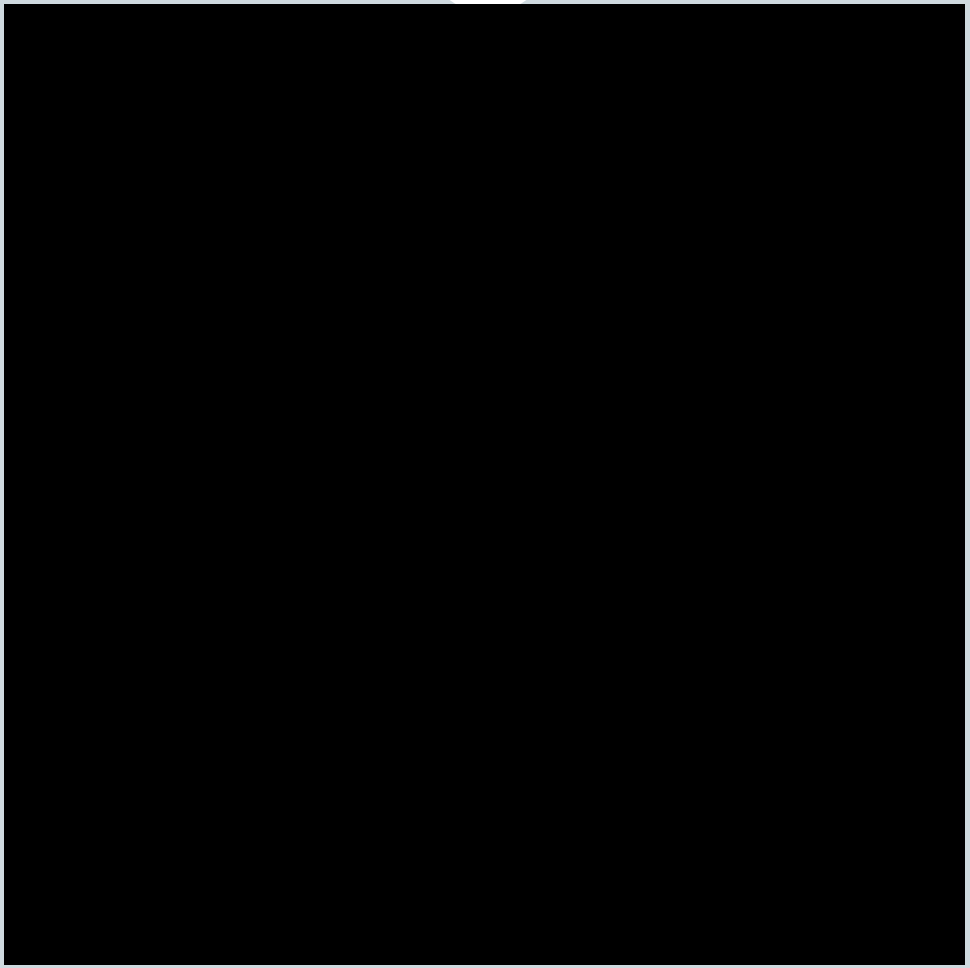
5. A circular flower garden has a radius of 3 feet. Find the circumference of the garden to the nearest hundredths.

$$C = 2\pi r$$

$$C = 2\pi 3$$

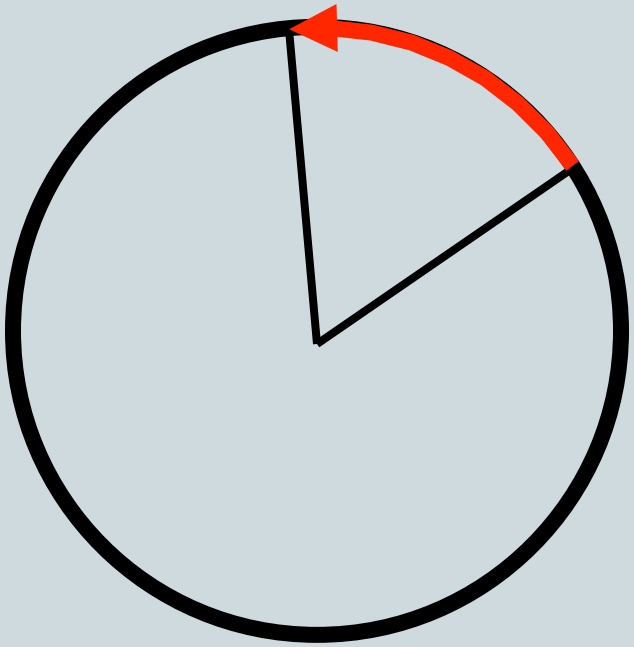
$$\boxed{C = 18.85 \text{ ft}}$$

Cocentric Circles



Arc Length

THE DISTANCE ALONG THE CURVED LINE MAKING THE ARC (NOT A DEGREE AMOUNT)

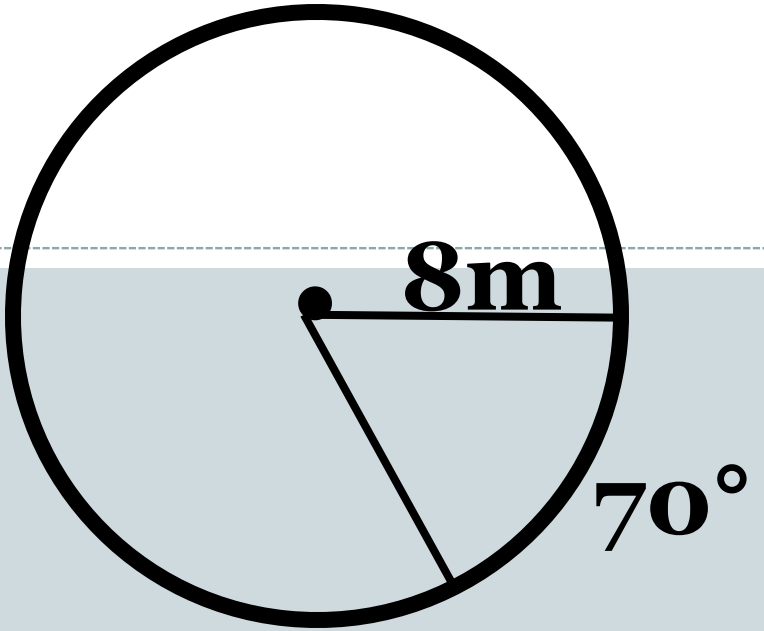


Arc Length

$$\text{Arc Length} = \left(\frac{\text{measure of arc}^\circ}{360^\circ}\right) 2\pi r$$

Ex 6. Find the Arc Length
Round to the nearest hundredths

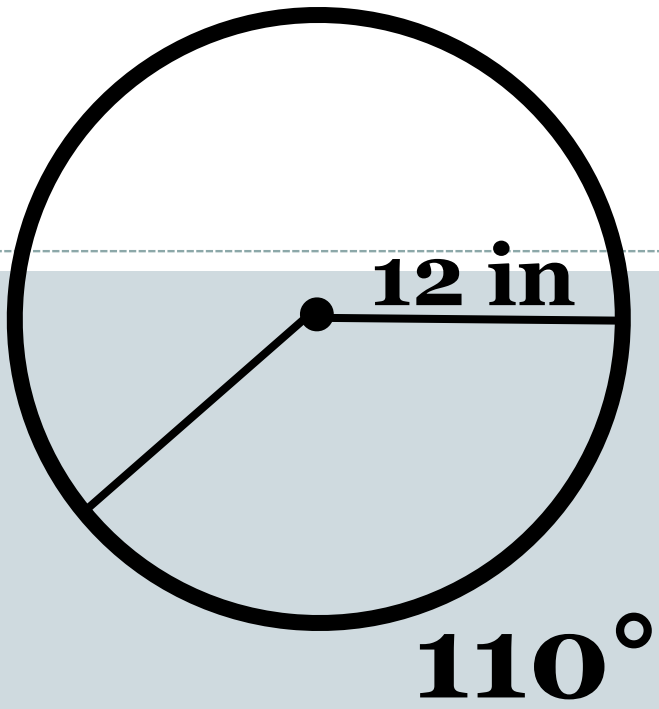
$$\text{Arc Length} = \left(\frac{\text{measure of arc}^\circ}{360^\circ}\right)2\pi r$$



9.77 m

Ex 7. Find the Arc Length
Round to the nearest hundredths

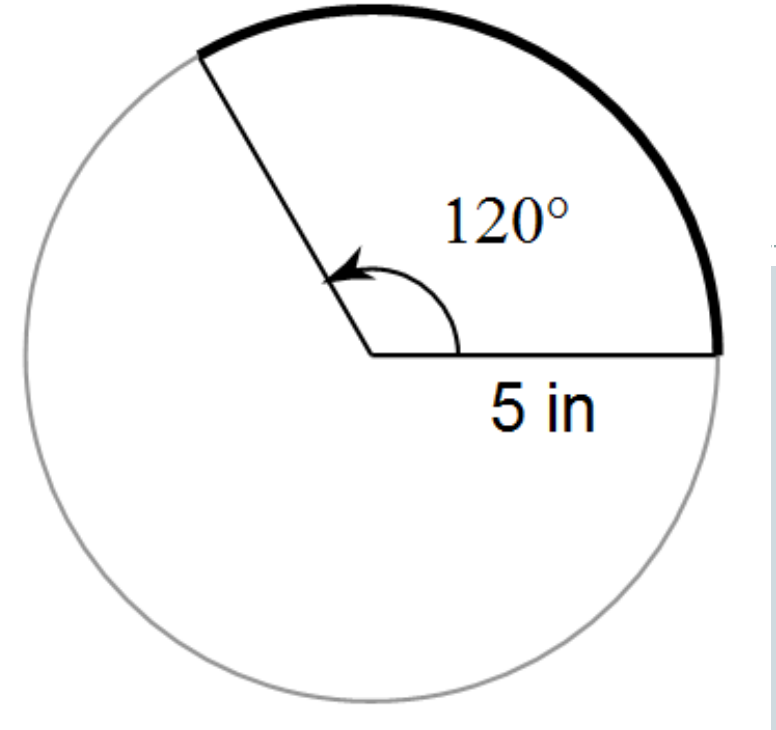
$$\text{Arc Length} = \left(\frac{\text{measure of arc}^\circ}{360^\circ}\right)2\pi r$$



23.04 in

Ex 8. Find the exact Arc Length.

$$\text{Arc Length} = \left(\frac{\text{measure of arc}^\circ}{360^\circ}\right)2\pi r$$



$$\frac{10}{3}\pi \text{ in}$$

Radian Measure of a Circle

ANOTHER WAY TO MEASURE ANGLES!

How to convert from …

- **Degrees to Radians:**

$$\text{multiply by } \frac{\pi}{180}$$

Mode – RAD
Type degrees
Math – DMS – 1:
OR Angle – 1:
enter

- **Radians to Degrees:**

$$\text{multiply by } \frac{180}{\pi}$$

Mode – DEG
Type radians
Math – DMS – 4:
OR Angle – 4:
enter