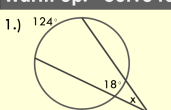
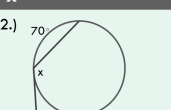
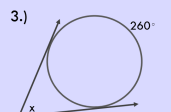


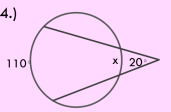
Arc Length and Sector Area Notes

Warm up: Solve for x

1.) 

2.) 

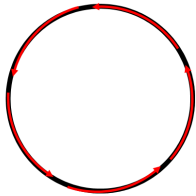
3.) 

4.) 

Circumference & Arc Length of Circles

Circumference

The distance around a circle



Circumference

$$C = 2\pi r$$

or

$$C = \pi d$$

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

Find the EXACT circumference.

1. $r = 14$ feet

2. $d = 15$ miles

Arc Length and Sector Area Notes

Round to the nearest tenths.

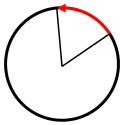


5. A circular flower garden has a radius of 3 feet. Find the circumference of the garden to the nearest hundredths.

$$C = 2\pi r$$

Arc Length

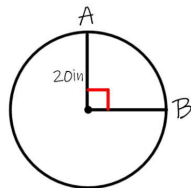
The *distance* along the curved line making the arc (NOT a degree amount)



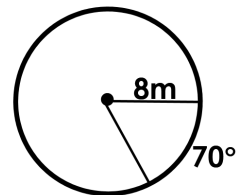
Arc Length

$$\text{Arc length} = \frac{\theta}{360} (\text{Circumference})$$

Let's Try this Together: Find the Exact Arc Length Of \widehat{AB} !

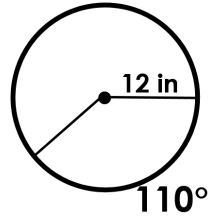


Ex 6. Find the Arc Length
Round to the nearest hundredths

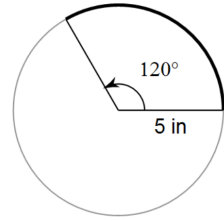


Arc Length and Sector Area Notes

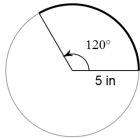
Ex 7. Find the Arc Length
Round to the nearest hundredths



Ex 8. Find the exact Arc Length.

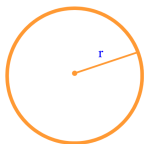


Ex 9. What happens to the arc length if the radius were to be doubled? Halved?



Area

The amount of space occupied.



$$A = \pi r^2$$

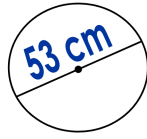
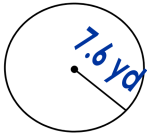
Find the EXACT area.

1. $r = 29$ feet

2. $d = 44$ miles

Arc Length and Sector Area Notes

Find the area. Round to the nearest tenths.



Another Example!

If $\odot S$ has a diameter of 10 inches, find the area of the circle to the nearest hundredths.

Sector

the region bounded by two radii of the circle and their intercepted arc.

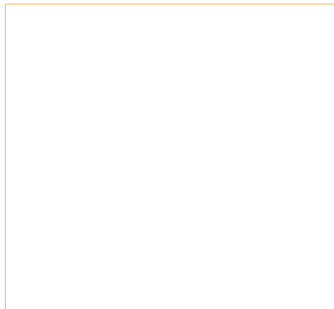
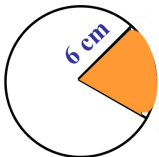


Area of a Sector

$$\text{Sector Area} = \frac{\theta}{360} (\text{Total Area})$$

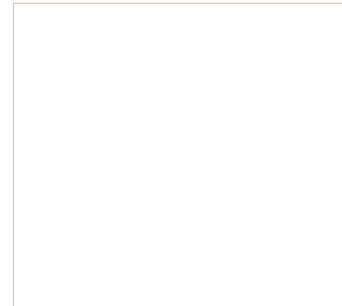
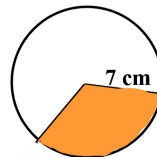
Example

Find the area of the sector to the nearest hundredths.



Example

Find the exact area of the sector.



Arc Length and Sector Area Notes

Example

Find the area of a sector with a central angle of 45° if the diameter of the circle is 12 inches. Round to the nearest hundredths.

Example

A spinner is divided into 12 equal sections and the radius of the spinner is 4 inches. Every other section is shaded. Find the exact total area of the shaded region on the spinner.