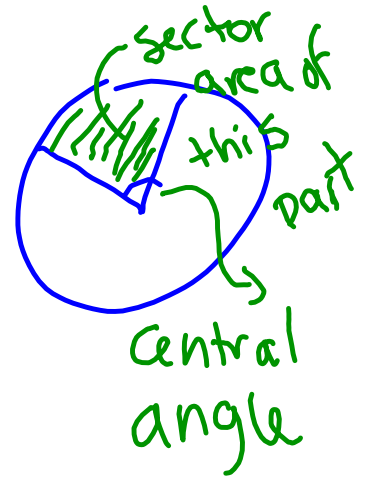


Lesson # 34
Area of a Sector

In a circle, the ratio of the measures of two central angles is equal to the ratio of the areas of the two sectors formed.

Where have we seen this before???? Lesson.... 31

$$\frac{\text{Central Angle}}{360} = \frac{\text{Sector area}}{\text{area}}$$



example 1:

What is the area of a ^xsector whose area is 50.24cm² and central angle is 120°.
 ↳ of disc

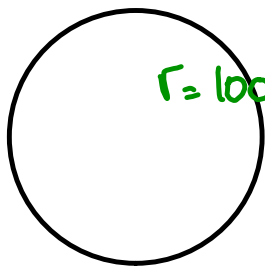
$$\frac{120^\circ}{360^\circ} = \frac{x}{50.24}$$

$$\frac{120 \times 50.24}{360} = x$$

$$16.75 = x$$

16.75cm²

example 2:



sector is 785cm²
 D = 2m
 d = 200cm
 r = 100cm
 Central angle ????

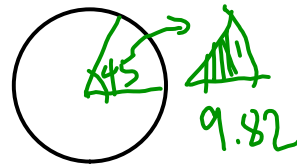
Step 1 Find area
 $A = \pi r^2 = \pi (100)^2 = 31415.93$

$$\frac{x^\circ}{360^\circ} = \frac{785 \text{ cm}^2}{31415.93 \text{ cm}^2}$$

$$\frac{360 \times 785}{31415.93} = x$$

x = 9°

example 3: What is D and/or R?
 Area of sector is 9.82 m^2
 CA is 45°



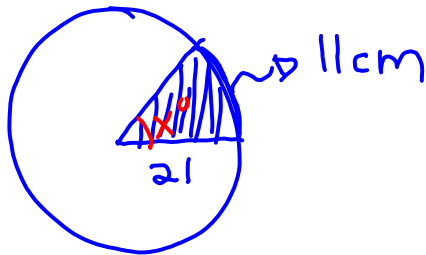
$$\frac{45^\circ}{360^\circ} = \frac{9.82 \text{ m}^2}{\text{area m}^2}$$

$$\text{area: } \frac{360 \times 9.82}{45} = 78.56 \text{ m}^2$$

$$a = \pi r^2 \quad \sqrt{\frac{a}{\pi}} = r^2 \quad r = \sqrt{\frac{a}{\pi}} = \sqrt{\frac{78.56}{\pi}}$$

example 4: A circle has a radius of 21 cm.
 Its central angle intercepts (goes with) an arc of 11cm.
 What is the Area of the sector corresponding with this central angle?

$$r = 21 \text{ cm}$$



$$C = 2\pi r \quad (L, 31)$$

$$C = 2\pi(21) = 131.95 \text{ cm}$$

$$2 - \frac{x^\circ}{360^\circ} = \frac{11 \text{ cm}}{131.95 \text{ cm}}$$

$$3 - \frac{360 \times 11}{131.95} = x = 30^\circ$$

Lesson 34

$$4 - \pi r^2 = \pi(21)^2 = 1385.44 \text{ cm}^2$$

$$\frac{30}{360} = \frac{\text{sector}}{1385.44}$$

$$\text{Sector} = \frac{30 \times 1385.44}{360}$$

$$= 115.45 \text{ cm}^2$$