

## 11.4 Circumference & Arc Length

$$\frac{C}{d} \approx 3.14 \quad \text{hey... is } \pi$$

$$\text{So } \frac{C}{d} = \pi$$

$$C = \pi d \quad C = 2\pi r$$

$$* d = 2r$$

### Example

① Find Circumf of  $\odot$  w/  $r = 9$  in

$$\begin{aligned} C &= 2\pi \cdot 9 \\ &= 56.5 \text{ in} \end{aligned}$$

② Find  $r$  for  $\odot$  with circumf of 26m.

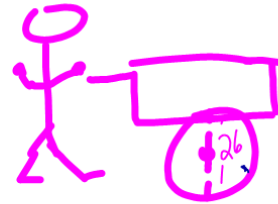
$$\frac{26}{2\pi} = \frac{2\pi r}{2\pi}$$

$$r = 4.13 \text{ m}$$

U  
 You push your cart & see the tire  
 valve stem go around 15 times.  
 If you have 26 inch tires, how far  
 did you push it?

\* Know  $d = 26$

If find  $C$ , can find how far you go!



$$C = 26\pi \quad \text{or} \quad 81.7 \text{ inches}$$

for 15 revolutions

$$15 * 81.7 = 1225.5 \text{ inches} \div 12$$

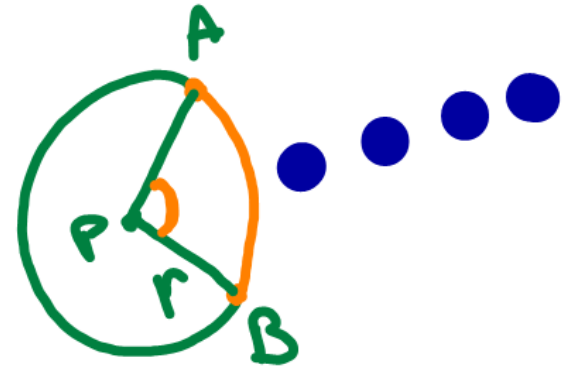
$$= 102.1 \text{ ft} \div 3$$

$$= 34. \text{ yd}$$

Arc length - A part of the circumference of a circle.

$$\frac{\text{Part of circumf}}{\text{Arc length of } \widehat{AB}} = \frac{m \widehat{AB}}{360^\circ}$$

total circumference
part of  $\odot$ 
total  $\odot$



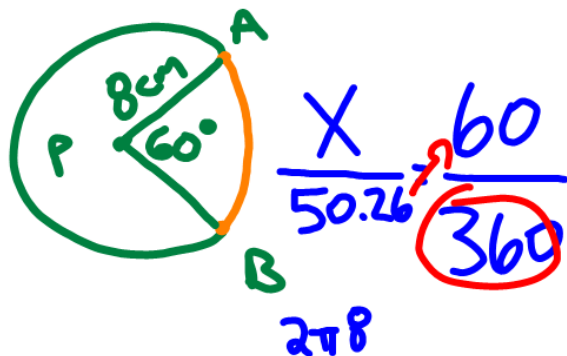
or

$$\frac{\text{length of arc}}{\text{Circumf of } \odot} = \frac{m \angle APB}{360^\circ}$$

# Example

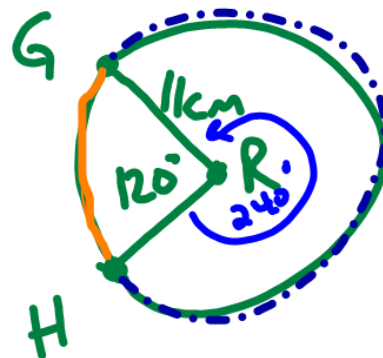
Find arc length

①



$$\frac{\widehat{AB}}{2\pi r} = \frac{m\angle APB}{360}$$

②



For blue arc length

$2\pi r$

$$\frac{X}{69.11} = \frac{240}{360}$$

$$46.07 \approx 46.1 \text{ cm}$$

$$X = 8.4 \text{ cm}$$

$$\frac{360}{360} X = \frac{3012}{360}$$