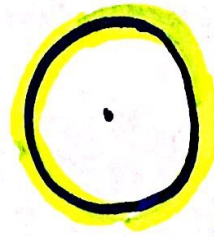


Circumference of a Circle: the entire distance around a circle

Formula for Circumference of a Circle

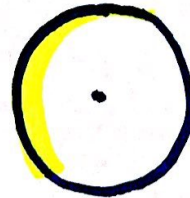
$$C = \pi d \text{ or } C = 2\pi r$$



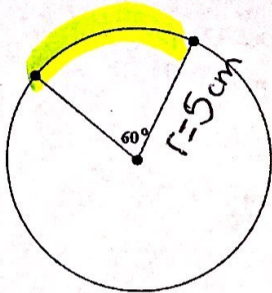
Arc Length of a Circle: the distance around part of a circle

Formula for Arc Length of a Circle

$$A.L. = \frac{2\pi r \theta}{360}$$

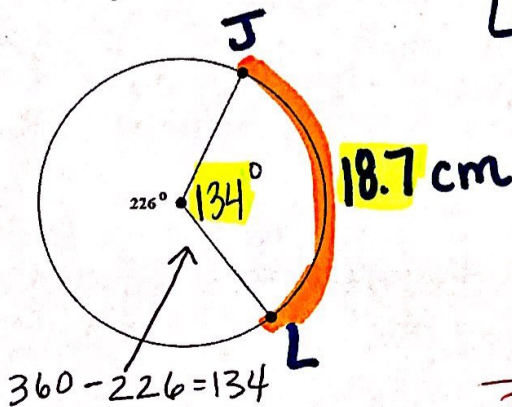


Example 1: Find the arc length



$$A.L. = \frac{2\pi(5)(60)}{360} = \frac{5\pi}{3} \text{ cm} \approx 5.2 \text{ cm}$$

Example 2: Find the radius



$$\text{Length } \widehat{JL} = 18.7 \text{ cm}$$

$$AL = \frac{2\pi r \theta}{360}$$

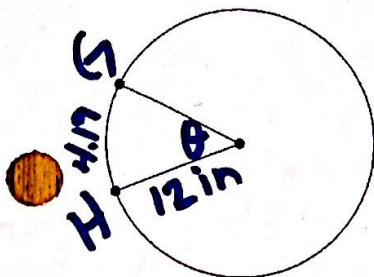
$$360 \cdot 18.7 = \frac{2\pi r \cdot 134}{360}$$

$$6732 = \frac{2\pi r \cdot 134}{360}$$

$$\frac{2\pi \cdot 134}{360} \cdot r = 6732$$

$$\boxed{r = 8 \text{ cm}}$$

Example 3: Find the central angle that intercepts the arc.



$$\text{Length } \widehat{GH} = 4.19 \text{ in}$$

$$r = 12 \text{ in}$$

$$AL = \frac{2\pi r \theta}{360}$$

$$360 \cdot 4.19 = \frac{2\pi \cdot 12 \theta}{360}$$

$$\frac{1508.4}{2\pi \cdot 12} = \frac{2\pi \cdot 12 \theta}{2\pi \cdot 12}$$

$$\boxed{20^\circ = \theta}$$