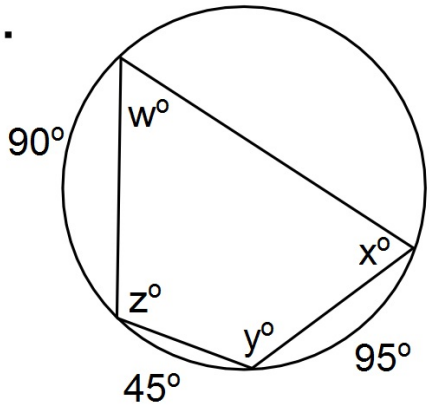
Bellwork

Solve for the variables:

1.



To find x:

(90+45)/2 = 135/2 = 67.5

To find z:

180 - x = 180 - 67.5 = 112.5

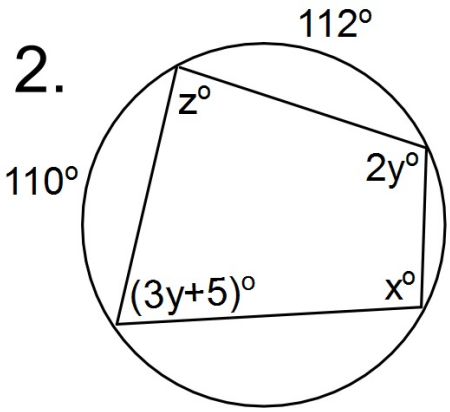
To find w:

(95+45)/2 = 140/2 = 70

To find y:

180 - w = 180 - 70 = 110

2.



To find x:

(110+112)/2 = 222/2 = 111

To find z:

180 - x = 180 - 111 = 69

To find y:

3y + 5 + 2y = 180

5y + 5 = 180

5y = 175

y = 35

Circumference

What is circumference?

The perimeter of a circle.

How do you find the circumference?

A. $C = 2\pi r$

B. $C = \pi d$

Examples

Find the indicated measure:

1. Find the circumference of a circle with a radius of 20 inches.

$C = 2\pi r$

$C = 2\pi(20)$

$\boxed{C = 40\pi}$

2. Find the radius of a circle with circumference of 42 feet.

$C = 2\pi r$

$\frac{42}{2\pi} = \frac{2\pi r}{2\pi}$

$\boxed{r = \frac{21}{\pi} \text{ or } 6.68}$

3. Find the diameter of a circle with a circumference of 25 centimeters.

$C = \pi d$

$\frac{25}{\pi} = \frac{\pi d}{\pi}$

$\boxed{d = \frac{25}{\pi} \text{ or } 7.96}$

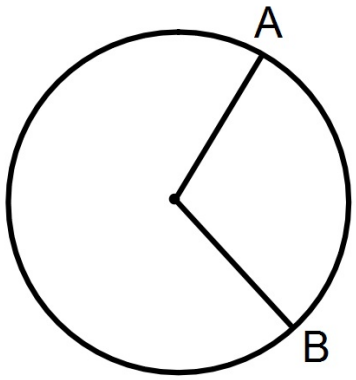
Arc Length

What is arc length?

A portion of the circumference of a circle.

How do you find the arc length?

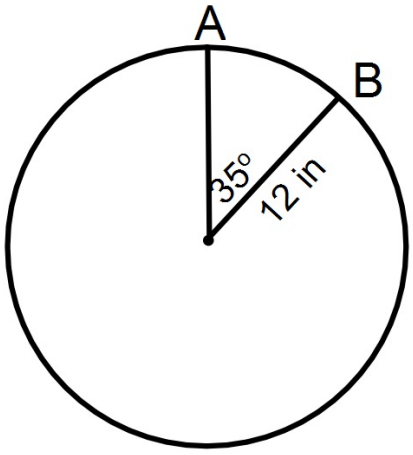
$$\text{Arc length of } \overset{\frown}{AB} = \frac{m\overset{\frown}{AB}}{360^{\circ}} \cdot 2\pi r$$



Examples

Find the length of arc $\overset{\frown}{AB}$:

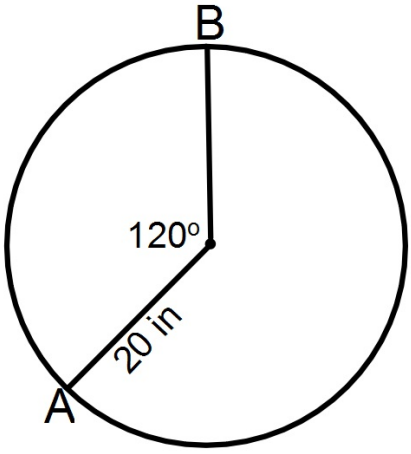
1.



$$L = \frac{35}{360} \cdot 2\pi(12)$$

$$L = \frac{35(2)(12)}{360}\pi = \boxed{\frac{7}{3}\pi}$$

2.



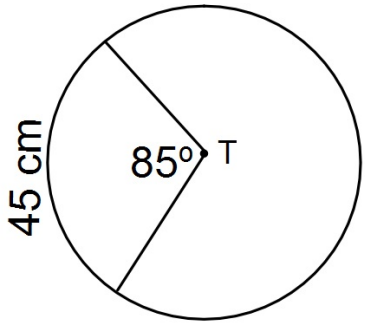
$$L = \frac{120}{360} \cdot 2\pi(20)$$

$$L = \frac{120(2)(20)}{360}\pi = \boxed{\frac{40}{3}\pi}$$

Examples

Find the indicated value:

3. Find the circumference of $\odot T$.

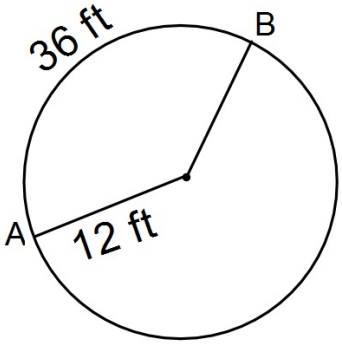


$360(45 = \frac{85}{360} \cdot C)360$

$\frac{16200}{85} = \frac{85C}{85}$

$190.59 \approx C$

4. Find the m $\overset{\frown}{AB}$



$36 = \frac{m\overset{\frown}{AB}}{360} \cdot 2\pi(12)$

$\frac{360(36)}{24\pi} = \frac{24\pi\ (m\overset{\frown}{AB})}{24\pi}$

$m\overset{\frown}{AB} \approx 171.89$