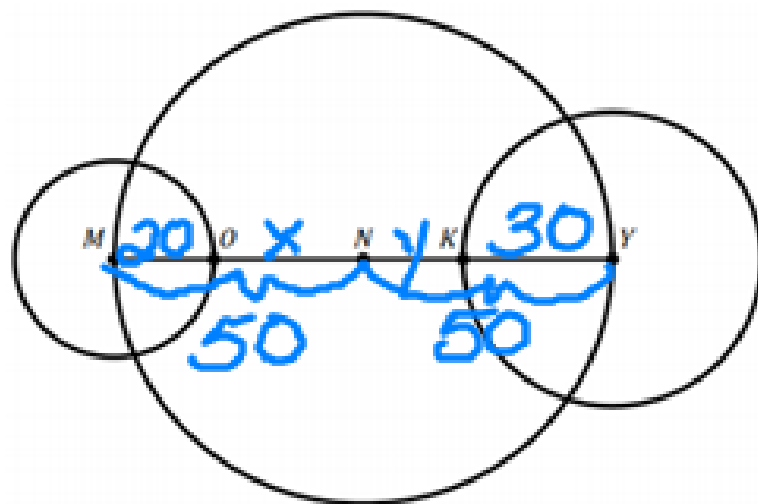


Your turn:



The diameters of circles M, N, and Y are 40 inches, 100 inches, and 60 inches, respectively.

- a. Determine the measure of ON. Justify your answer.

$$50 - 20 = 30$$

- b. Determine the measure of NK. Justify your answer.

$$50 - 30 = 20$$

What is the term for the distance around a circle?

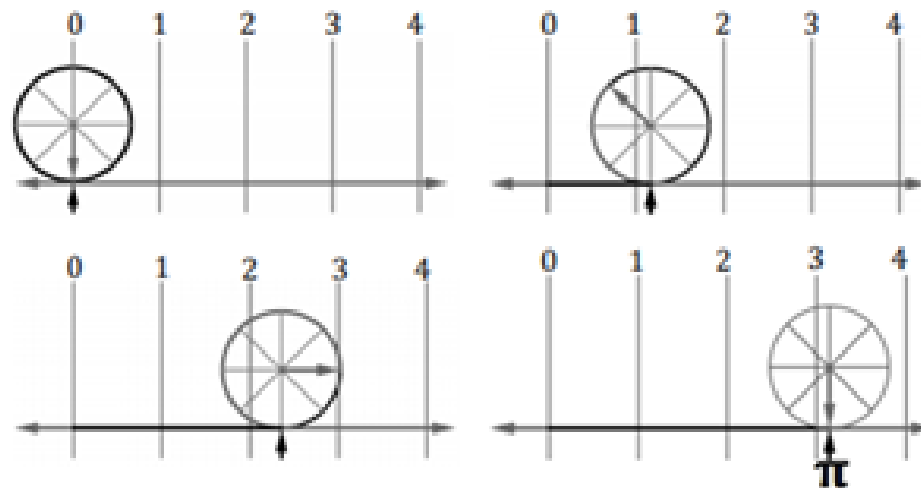
Circumference

We know that the Greek letter pi, π , is very important for circles.

What does π represent?

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

For example, take a circle whose diameter is 1 unit. If you roll it until you get back to the start, how much would it measure?

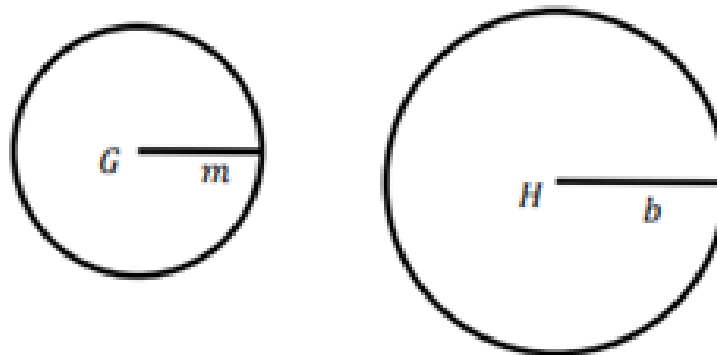


If $\pi = \frac{C}{d}$, then what is the circumference, C , of a circle?

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

Practice:

Consider circle G with radius m and circle H with radius b shown below.



Find the circumference of both circles.

$$C = 2m\pi \quad C = 2b\pi$$

Find the ratio of circumference to radius for each circle.

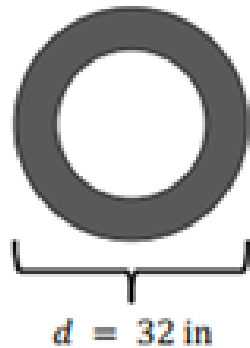
$$\frac{2m\pi}{m} = 2\pi \quad \frac{2b\pi}{b} = 2\pi$$

Your turn:

Tires from two different trucks are shown. How much farther does Tire A travel compared to Tire B after one revolution?

$$C = d\pi$$

Tire A:



$$C = 32\pi$$

Tire B:



$$C = 28\pi$$

$$\begin{array}{r} 32\pi \\ - 28\pi \\ \hline 4\pi \end{array}$$

The army mapped out a war zone in a city. It has a radius of 7 kilometers. What is the circumference of the war zone?

Round to nearest tenth

$$14\pi \approx 43.982$$

44.0

Find the radius of a circle with a circumference of 37.68 inches.

Use $\pi = 3.14$.

$$C = d\pi$$

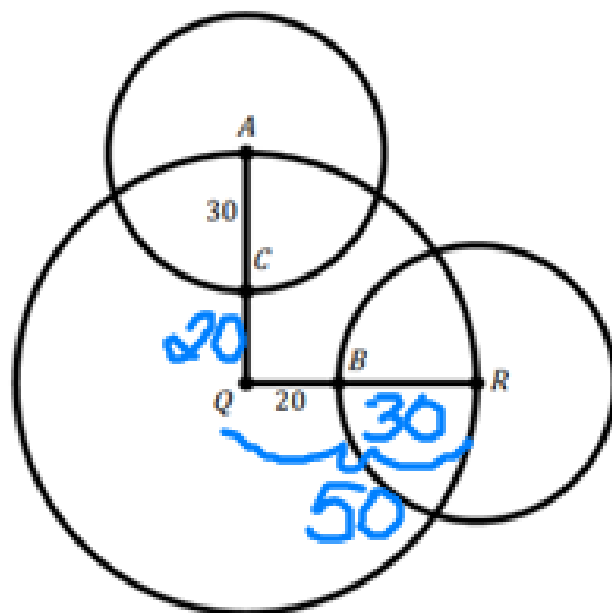
$$\frac{37.68}{3.14} = \frac{d(3.14)}{3.14}$$

$$12 = d$$

$$\boxed{6 = r}$$

Informal Assessment:

$$\begin{array}{r} C = 377.0 \\ C = 314 \\ \hline 62.9 \end{array}$$



Circle A and circle R are congruent. Which of the following statements are correct? Select all that apply.

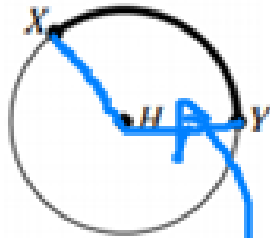
- $20 + 30$
- $QC + BR = 50$
 - The radius of circle R is half the radius of circle Q .
 - The combined circumference for circles A and R is almost 63 units larger than the circumference of Q .
 - The radius of circle Q is 40 units long.
 - The diameter of circle A is 30 units long.

Given two points on a circle:

a. An arc length is a portion of the Circumference of a circle.

b. The minor arc is the shortest arc linking both points. The major arc is the longest and often defined using another point on the arc, and use all three points to define it.

c. The ratio of the length of an arc to the Circumference is equal to the ratio of the measure of arc to 360.



$$\frac{\widehat{XY}}{2\pi r} = \frac{m\widehat{XY}}{360^\circ}$$

central $\angle = m\widehat{XY}$

minor arc $< 180^\circ$

Semicircle $= 180^\circ$

major arc $> 180^\circ$