A Circle is the set of all points in a plane that are connected and equidistance from a fixed point of the circle called the center of the circle.

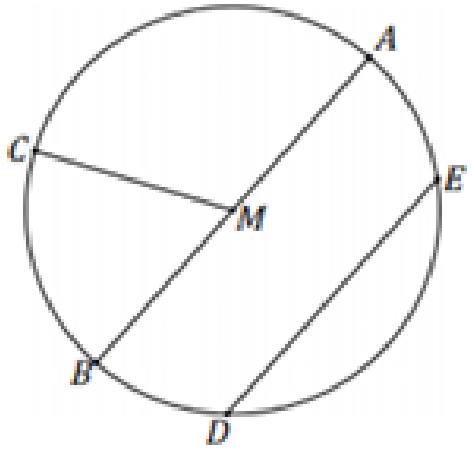
A circle is usually named by its center. ⊙C

Any segment with an endpoint at the center and an endpoint on the circle is a radius.

Any segment with endpoints that are on the circle is a chord of the circle.

A chord that passes through the center is a diameter of the circle, and it measures twice the radius.

Practice:

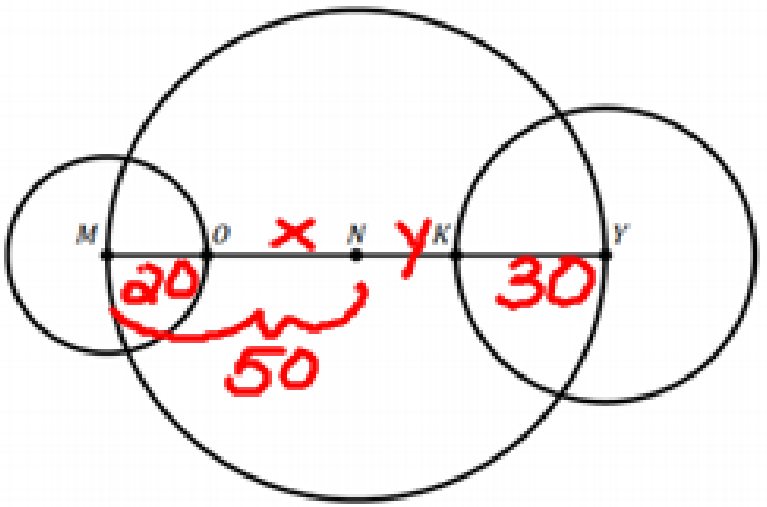


Identify the parts of the circle in each space provided below.

Center	M
Radius	$\overline{CM}$, $\overline{BM}$, $\overline{AM}$
Chord	$\overline{DE}$, $\overline{BA}$
Diameter	$\overline{BA}$

If the diameter of circle M is 10 millimeters, what is the length of the radius of circle M? 5

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.

$50 - 30 = 20$

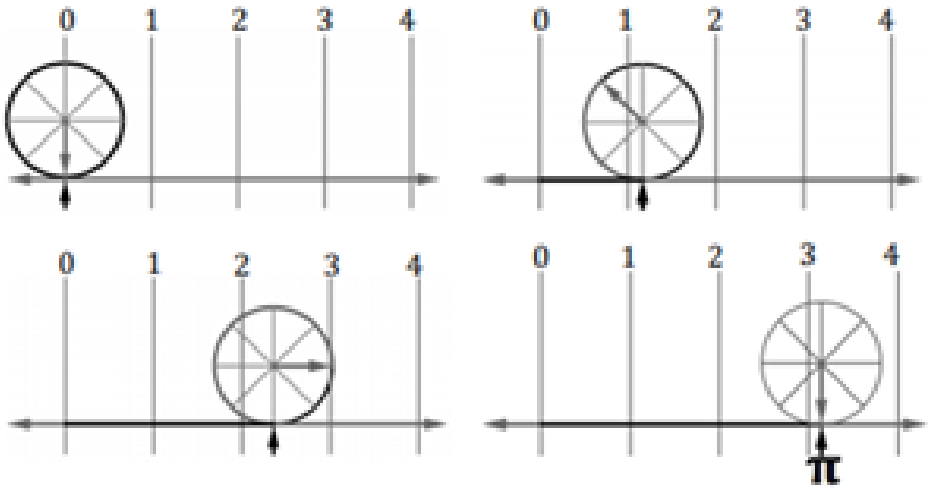
What is the term for the distance around a circle?

Circumference

We know that the Greek letter pi, π, is very important for circles. What does π represent?

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

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?

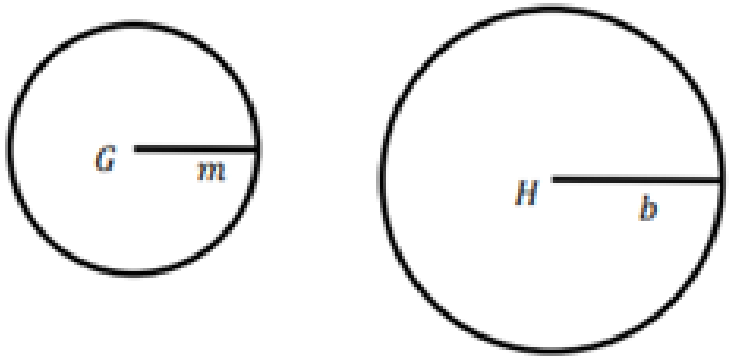


If $\pi = \frac{C}{d}$, then what is the circumference, C, of a circle?

$C = d\pi$

Practice:

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



Find the circumference of both circles.

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

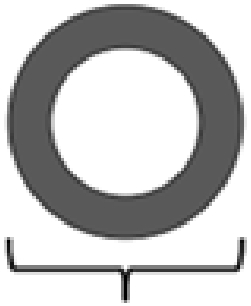
Find the ratio of circumference to radius for each circle.

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

Your turn:

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

Tire A:



$d = 32$ in

Tire B:

$d = 28$ in

$32\pi - 28\pi$

4π

$32\pi \approx 100.5310$ $28\pi \approx 87.9646$

12.5664

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?

$14\pi \approx 43.9823$