

Circumference and Area of a Circle TEKS G.8.A

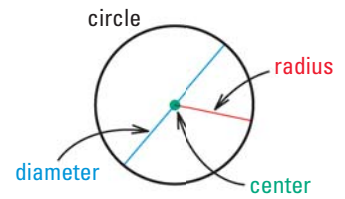
A **circle** consists of all points in a plane that are the same distance from a fixed point called the **center**.

The distance between the center and any point on the circle is the **radius**. The distance across the circle through the center is the **diameter**. The diameter is twice the radius.

The **circumference** of a circle is the distance around the circle. For any circle, the ratio of the circumference to the diameter is π (pi), an irrational number that is approximately 3.14 or $\frac{22}{7}$.

To find the circumference C of a circle with radius r , use the formula $C = 2\pi r$.

To find the area A of a circle with radius r , use the formula $A = \pi r^2$.



EXAMPLE

Find the circumference and area of a circle with radius 6 cm. Give an exact answer and an approximate answer for each.

Circumference

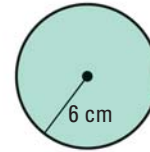
$$\begin{aligned} C &= 2\pi r \\ &= 2\pi(6) \\ &= 12\pi \\ &\approx 12(3.14) \\ &\approx 37.7 \end{aligned}$$

▶ The circumference is 12π centimeters, or about 37.7 centimeters.

Area

$$\begin{aligned} A &= \pi r^2 \\ &= \pi(6)^2 \\ &= 36\pi \\ &\approx 36(3.14) \\ &\approx 113 \end{aligned}$$

▶ The area is 36π square centimeters, or about 113 square centimeters.



PRACTICE

Find the circumference and area of the circle. Give an exact answer and an approximate answer for each.

