

**What happens to the circumference of a circle if you double the radius? What happens if you double the diameter? What happens if you triple the radius? I need to show a problem and how to solve it.**

Circumference is the linear distance around the outside of a closed curve or circular object.

We can find the length of circumference as function of radius:

$$C = 2 \cdot \pi \cdot r$$

C – circumference of a circle;

r – radius of the circle;

$$\pi \approx 3.14$$

Connection between radius and diameter:

$$D = 2 \cdot r \text{ - diameter of the circle}$$

**What happens to the circumference of a circle if you double the radius?**

$R = 2 \cdot r$  - new radius;

$$C' = 2 \cdot \pi \cdot R = 2 \cdot \pi \cdot (2 \cdot r) = 2 \cdot (2 \cdot \pi \cdot r) = 2 \cdot C$$

**What happens if you double the diameter?**

$$D = 2 \cdot r$$

$$D' = 2 \cdot D = 2 \cdot (2 \cdot r) = 4 \cdot r$$

$$D' = 2 \cdot R'$$

$$\Rightarrow R' = 2 \cdot r$$

$$C' = 2 \cdot \pi \cdot R' = 2 \cdot \pi \cdot 2 \cdot r = 2 \cdot C$$

**What happens if you triple the radius?**

$R = 3 \cdot r$  - new radius;

$$C' = 2 \cdot \pi \cdot R = 2 \cdot \pi \cdot (3 \cdot r) = 3 \cdot (2 \cdot \pi \cdot r) = 3 \cdot C$$