



## How to use Pi

Pi (often represented by the lower-case Greek letter  $\pi$ ), one of the most well-known mathematical constants, is the ratio of a circle's circumference to its diameter. For any circle, the distance around the edge is a little more than three times the distance across.

**Circumference of a Circle:** When trying to find the circumference of any circle, simply multiply the diameter by  $\pi$ , like this:  $d\pi = \text{circumference}$ . Since the radius of any circle is half of its diameter, we can change this formula by substituting two times the radius in for diameter:  $(2r)\pi = \text{circumference}$ .

**Area of a Circle:** To find the area of a circle using pi, we multiply the radius (half the diameter) by itself, so we get radius squared, like this:  $r^2$  where "r" represents the radius. Then we multiply radius squared by pi. See the following formula: The area of a circle =  $\pi r^2$ .

## Pi Practice Questions

Now that you have the basics down, let's try some practice questions. Note: when doing these practice questions, and multiplying something by  $\pi$  just round to the hundredths place (3.14) to make things simpler.

**1. Practice Circumference Question:** A circle has a radius of 23 cm. Which of the following is the best estimate for the circumference of the circle? (Hint: plug the radius of 23cm into the formula for circumference:  $(2r)\pi = \text{circumference}$ )

- a. 71.76 cm
- b. 143.52 cm
- c. 144.44 cm
- d. 72.22 cm

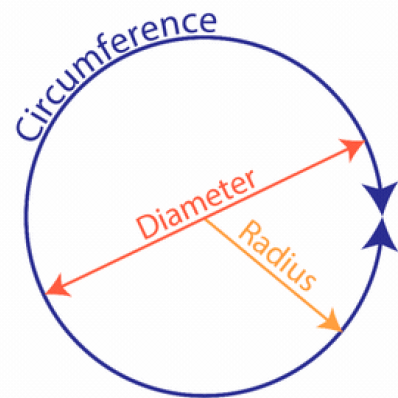
Don't forget to show your work!

**2. Practice Area Question:** The radius of a circle is 6 inches. What is the area?

- a. 18.84 in<sup>2</sup>
- b. 37.68 in<sup>2</sup>
- c. 87.98 in<sup>2</sup>
- d. 113.04 in<sup>2</sup>

Find out how you did by checking your work against the answers below. For more math help and pi related activities, head to PiDay.org! Happy Pi Day!

### Circumference of a Circle



$$\frac{\text{Circumference}}{\text{Diameter}} = \pi = 3.14159\dots$$



Question 1 - C: The circumference of a circle can be determined by using the formula  $C = \pi d$ . A radius of 23 cm indicates a diameter of 46 cm, or twice that length. Substitution of 46 cm for d and 3.14 for  $\pi$  gives the following:  $C = 3.14 \times 46$ , which equals 144.44. Thus, the circumference of the circle is approximately 144.44 cm.  
Question 2 - D: The formula for the area of a circle is  $A = \pi r^2$ .