



# 7-4 Circles and Circumference (Pages 341–344)

A **circle** is the set of all points in a plane that are the same distance from a given point in the plane. The given point is called the **center**. The distance from the center to any point on the circle is called the **radius** ( $r$ ). The distance across the circle through its center is its **diameter** ( $d$ ). The **circumference** ( $C$ ) of a circle is the distance around the circle. The circumference of a circle is always 3.1415926 times the diameter. This number is represented by the Greek letter  $\pi$  (**pi**). The number  $\pi$  is not a rational number, but the rational numbers 3.14 and  $\frac{22}{7}$  can be used as approximate values of  $\pi$ .

<b>Circumference</b>	The circumference of a circle is equal to its diameter times $\pi$ , or two times its radius times $\pi$ . $C = \pi d$ or $C = 2\pi r$
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## EXAMPLES

**Find the circumference of each circle described below. Round decimal answers to the nearest hundredth.**

**A** The radius is 2.5 cm.  
 $C = 2\pi r$   
 $C = 2(3.14)(2.5)$  Use 3.14 for  $\pi$ .  
 $C = 15.7$   
 The circumference is about 15.7 cm.

**B** The diameter is  $6\frac{1}{8}$  in.  
 $C = \pi d$   
 $C = \left(\frac{22}{7}\right)\left(6\frac{1}{8}\right)$  Use  $\frac{22}{7}$  for  $\pi$ .  
 $C = \frac{22}{7} \cdot \frac{49}{8}$  Simplify using the GCF.  
 $C = \frac{77}{4}$  or  $19\frac{1}{4}$   
 The circumference is about  $19\frac{1}{4}$  in.

## PRACTICE

**Find the circumference of each circle. Round decimals to the nearest hundredth.**

1. The diameter is 6.8 meters.
2. The radius is 1.7 meters.
3. The radius is 0.4 yards.
4. The diameter is 9.4 yards.
5. The diameter is 4.3 meters.
6. The radius is 12.2 feet.
7. **Sports** A bicycle racing track is called a velodrome. If a velodrome is perfectly round, with a diameter of 500 meters, what is its circumference?



**8. Standardized Test Practice** Find the circumference of a circle with a diameter of 44 feet.

- A** 22 ft                      **B** 69.08 ft                      **C** 138.16 ft                      **D** 276.32 ft

Answers: 1. 21.35 m   2. 10.68 m   3. 2.51 yd   4. 29.52 yd   5. 13.50 m   6. 76.62 ft   7. 1570 m   8. C
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