

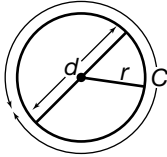
7-4

Name _____ Date _____

Circles and Circumferences

(pages 280–283)

A circle is a set of points in a plane, all of which are the same distance from a fixed point in the plane called the **center**.

<p>Circle Definitions</p> 	<ul style="list-style-type: none"> The distance from the center of a circle to any point on the circle is called the radius (r). The distance across the circle through the center is called the diameter (d). The diameter of a circle is twice the length of its radius. The circumference (C) is the distance around the circle. The circumference of a circle is always a little more than three times its diameter. The exact number of times is represented by the Greek letter π (pi). The decimal 3.14 and the fraction $\frac{22}{7}$ are used as approximations for π.
<p>Finding the Circumference</p>	<p>The circumference of a circle is equal to π times the diameter or π times twice its radius. $C = \pi d$ or $C = 2\pi r$</p>

EXAMPLE

Find the circumference of a circle with a diameter of $2\frac{1}{2}$ in.

$$\begin{aligned}
 C &= \pi d \\
 &\approx \frac{22}{7} \cdot 2\frac{1}{2} && \text{Replace } \pi \text{ with } \frac{22}{7} \text{ and } d \text{ with } 2\frac{1}{2}. \\
 &\approx \frac{22}{7} \cdot \frac{5}{2} && \text{Write } 2\frac{1}{2} \text{ as an improper fraction.} \\
 &\approx \frac{11}{7} \cdot \frac{5}{1} && \text{Divide 2 and 22 by the GCF, 2.} \\
 &\approx \frac{55}{7} \text{ or } 7\frac{6}{7} && \text{Multiply and rewrite as a mixed number.}
 \end{aligned}$$

PRACTICE

Find the circumference of each circle described below. For fractions, use $\frac{22}{7}$ for π . For decimals and whole numbers, use 3.14 for π .

- $d = 8$ in.
- $r = 4\frac{1}{6}$ ft
- $r = 6$ m
- $d = 1.4$ m
- $r = \frac{9}{10}$ in.
- $d = 2\frac{1}{2}$ ft
- $r = 5\frac{2}{3}$ in.
- $d = 10$ cm



- 9. Standardized Test Practice** The Sacagawea Golden Dollar coin has a radius of $13\frac{1}{4}$ mm. What is its circumference?

- A** $41\frac{9}{14}$ mm **B** $83\frac{2}{7}$ mm **C** $26\frac{1}{2}$ mm **D** $79\frac{1}{2}$ mm

Answers: 1. 25.12 in. 2. $26\frac{2}{4}$ ft 3. 37.68 m 4. 4.396 m 5. $5\frac{5}{23}$ in. 6. $7\frac{7}{6}$ ft 7. $35\frac{2}{13}$ in. 8. 31.4 cm 9. B