

NAME: _____

DATE: _____

CIRCLES & AREA

PERIOD: _____

How Do You Estimate and Calculate the Circumference of a Circle?

(Topic #2)

The distance around a circle is called the **circumference**. The ratio $\frac{\text{circumference}}{\text{diameter}}$ is the same for *every* circle and is represented by the Greek letter π , called **pi**.

$$\pi = \frac{\text{circumference}}{\text{diameter}}$$

Circumference of a Circle

The circumference, C , of a circle is equal to π times its diameter, d , or π times twice the radius.

$$C = \pi d$$

$$C = 2\pi r$$

EXAMPLE 1: Using Radius to Find Circumference

a) Find the circumference of a circle with a radius of 11 meters. Round to the *nearest hundredth*.

b) Find the circumference of a circle with a radius of $3\frac{1}{2}$ feet. Leave your answer in *terms of π* .

EXAMPLE 2: Using Diameter to Find Circumference

a) Find the circumference of the circle whose diameter is 21 feet. Round to *nearest foot*.

b) Find the circumference of the circle with a diameter 63 mm. Leave your answer in *terms of π* .

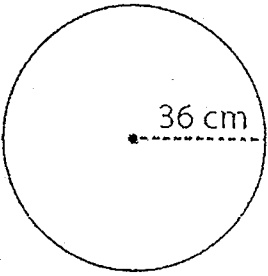
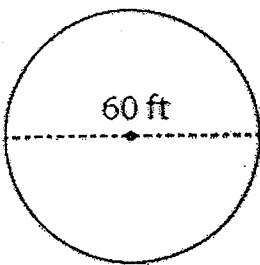
EXAMPLE 3: Using Circumference to Find the Diameter

- a) A Ferris wheel has a circumference of about 423.9 feet. What is the diameter of the Ferris wheel? Round to the *nearest tenth*.

EXAMPLE 4: Using Circumference to Find the Radius

- a) A pottery wheel has a circumference of 44 inches. Find the radius. Round to the *nearest tenth*.

PRACTICE: Find the circumference of each circle, both in terms of π and to the *nearest tenth*. Show all work.

	Leave in terms of π .	Round to <i>nearest tenth</i> .
1. 		
2. 		

Find the radius or diameter of the circle with the given circumference. Round to the nearest hundredth. Show all work.

3. Find the diameter of a basketball hoop with a circumference of 56.52 inches.

4. Find the radius of a satellite dish with a Circumference of 957.7 meters.

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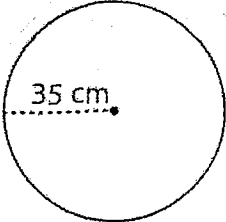
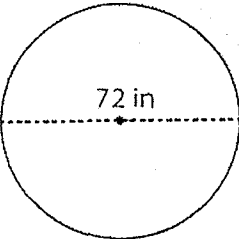
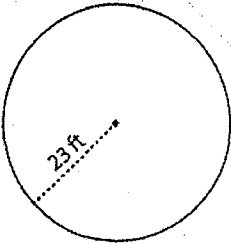
PERIOD: _____

HOMEWORK - (Topic #2)

Estimating and Calculating the Circumference of a Circle

Find the circumference of each circle, both in terms of π and to the nearest hundredth.

Show all work.

	Leave in terms of π.	Round to nearest hundredth.
1. 		
2. 		
3. 		

4. The Belknap shield volcano is located in the Cascade Range in Oregon. The volcano is circular and has a diameter of 5 miles. What is the circumference of this volcano? Round to the *nearest tenth*.

5. A circular flower bed has radius 22 inches. What is the circumference of the bed to the *nearest tenth* of an inch?

6. A giant twine ball in Darwin, Minnesota, has a circumference about 37.7 feet. What is the diameter of the ball? Round to the *nearest foot*.

7. The Minnesota State Capitol has one of the largest unsupported marble domes in the world, with a circumference of 279.6 feet at its widest point. Find the radius. Round to the *nearest foot*.

Who's Up For the Challenge?

8. The largest tree in the world by volume is in Sequoia National Park. The diameter at the base is 36 feet. If a person with outstretched arms can reach 6 feet, how many people would it take to reach around the base of the tree?

How Do You Estimate and Calculate the Circumference of a Circle? (Topic #2)

The distance around a circle is called the **circumference**. The ratio $\frac{\text{circumference}}{\text{diameter}}$ is the same for every circle and is represented by the Greek letter π , called **pi**.

$$\pi = \frac{\text{circumference}}{\text{diameter}}$$

Circumference of a Circle

The circumference, C , of a circle is equal to π times its diameter, d , or π times twice the radius.

$$C = \pi d \qquad C = 2\pi r$$

EXAMPLE 1: Using Radius to Find Circumference

<p>a) Find the <u>circumference</u> of a circle with a radius of 11 meters. Round to the nearest hundredth.</p> $C = 2\pi r$ $C = 2\pi(11)$ $C = 69.11503838\dots$ $C \approx 69.1 \text{ meters}$	<p>b) Find the <u>circumference</u> of a circle with a radius of $3\frac{1}{2}$ feet. Leave your answer in terms of π.</p> $C = 2\pi r$ $C = 2\pi\left(3\frac{1}{2}\right)$ $C = 7\pi \text{ ft}$
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EXAMPLE 2: Using Diameter to Find Circumference

<p>a) Find the <u>circumference</u> of the circle whose diameter is 21 feet. Round to nearest foot.</p> $C = \pi d$ $C = \pi(21)$ $C = 65.97344573\dots$ $C \approx 66 \text{ ft}$	<p>b) Find the <u>circumference</u> of the circle with a diameter 63 mm. Leave your answer in terms of π.</p> $C = \pi d$ $C = \pi(63)$ $C = 63\pi \text{ mm}$
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EXAMPLE 3: Using Circumference to Find the Diameter

- a) A Ferris wheel has a circumference of about 423.9 feet. What is the diameter of the Ferris wheel? Round to the *nearest tenth*.

$$C = \pi d$$

$$\frac{423.9}{\pi} = \frac{\pi d}{\pi}$$

$$134.9315608 = d$$

$$d \approx 134.9 \text{ ft}$$

EXAMPLE 4: Using Circumference to Find the Radius

- a) A pottery wheel has a circumference of 44 inches. Find the radius. Round to the *nearest tenth*.

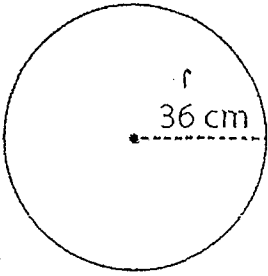
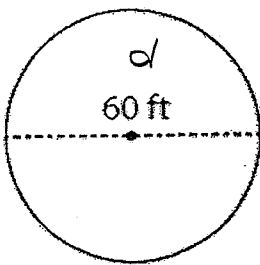
$$C = 2\pi r$$

$$\frac{44}{2\pi} = \frac{2\pi r}{2\pi}$$

$$7.002817496 = r$$

$$r = 7.0 \text{ in}$$

PRACTICE: Find the circumference of each circle, both in terms of π and to the *nearest tenth*. Show all work.

	Leave in terms of π .	Round to nearest tenth.
1. 	$C = 2\pi r$ $C = 2\pi (36)$ $C = 72\pi$ cm	$C = 2\pi r$ $C = 2\pi (36)$ $C = 226.1946711$ $C \approx 226.2 \text{ cm}$
2. 	$C = \pi d$ $C = 60\pi$ ft	$C = \pi d$ $C = 60\pi$ $C = 188.4955592$ $C \approx 188.5 \text{ ft}$

Find the radius or diameter of the circle with the given circumference. Round to the nearest hundredth. Show all work.

3. Find the diameter of a basketball hoop with a circumference of 56.52 inches.

$$C = \pi d$$

$$\frac{56.52}{\pi} = \frac{\pi d}{\pi}$$

$$17.99087477 = d$$

$$d \approx 17.99 \text{ in}$$

4. Find the radius of a satellite dish with a Circumference of 957.7 meters.

$$C = 2\pi r$$

$$\frac{957.7}{2\pi} = \frac{2\pi r}{2\pi}$$

$$152.422689 = r$$

$$r = 152.42 \text{ m}$$

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ME!

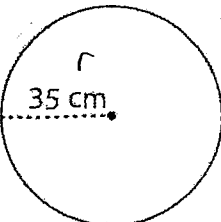
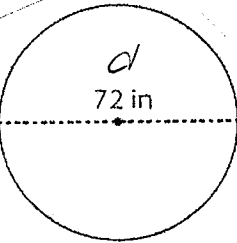
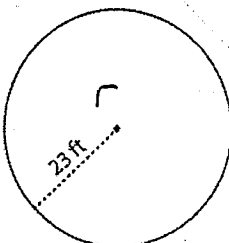
CIRCLES & AREA

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HOMEWORK - (Topic #2)**Estimating and Calculating the Circumference of a Circle**Find the circumference of each circle, both in terms of π and to the nearest hundredth.

Show all work.

	Leave in terms of π .	Round to nearest hundredth.
1. 	$C = 2\pi r$ $C = 2\pi (35)$ $C = 70\pi \text{ cm}$	$C = 2\pi r$ $C = 2\pi (35)$ $C = 70\pi$ $C = 219.914858$ $C \approx 219.91 \text{ cm}$
2. 	$C = \pi d$ $C = 72\pi \text{ in}$	$C = \pi d$ $C = 72\pi$ $C = 226.1946711$ $C \approx 226.19 \text{ in}$
3. 	$C = 2\pi r$ $C = 2\pi (23)$ $C = 46\pi \text{ ft}$	$C = 2\pi r$ $C = 2\pi (23)$ $C = 46\pi$ $C = 144.5132621$ $C \approx 144.51 \text{ ft}$

4. The Belknap shield volcano is located in the Cascade Range in Oregon. The volcano is circular and has a diameter of 5 miles. What is the circumference of this volcano? Round to the *nearest tenth*.

$$C = \underline{\quad}$$

$$C = \pi d$$

$$C = \pi (5)$$

$$C = 15.70796327$$

$$C = 15.7 \text{ mi}$$

5. A circular flower bed has radius 22 inches. What is the circumference of the bed to the *nearest tenth* of an inch?

$$C = 2 \pi r$$

$$C = 2 \pi (22)$$

$$C = 138.2300768$$

$$C \approx 138.2 \text{ in}$$

6. A giant twine ball in Darwin, Minnesota, has a circumference about 37.7 feet. What is the diameter of the ball? Round to the *nearest foot*.

$$C = \pi d$$

$$\frac{37.7}{\pi} = \frac{\pi d}{\pi}$$

$$12.00028271 = d$$

$$d = 12 \text{ ft}$$

7. The Minnesota State Capitol has one of the largest unsupported marble domes in the world, with a circumference of 279.6 feet at its widest point. Find the radius. Round to the *nearest foot*.

$$C = 2 \pi r$$

$$\frac{279.6}{2\pi} = \frac{2\pi r}{2\pi}$$

$$44.49972209 = r$$

$$r = 44 \text{ ft}$$

Who's Up For the Challenge?

8. The largest tree in the world by volume is in Sequoia National Park. The diameter at the base is 36 feet. If a person with outstretched arms can reach 6 feet, how many people would it take to reach around the base of the tree?

①

$$C = \pi d$$

$$C = 36 \pi$$

$$C = 113.0973355$$

②

$$\frac{113.0973355}{6} = 18.84955\ldots$$

$$\approx 18-19 \text{ people}$$