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# PERIMETERS IN REAL LIFE



Ann has a trampoline. Sometimes she bumps her head on the bar that goes around the edge of the trampoline. She is going to put a rubber safety tube around the edge.




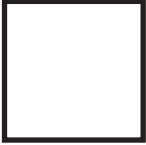
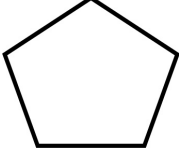
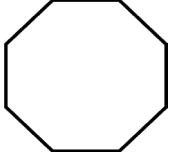
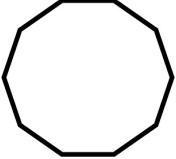
Ann's trampoline is in the shape of a heptagon. It has seven sides. Ann measures one side. It is six feet in length.

What is the perimeter? \_\_\_\_\_ feet

How many feet of rubber tubing does Ann need? \_\_\_\_\_

**The Game: Fill in the chart. Use the words below.  $s = 5$**

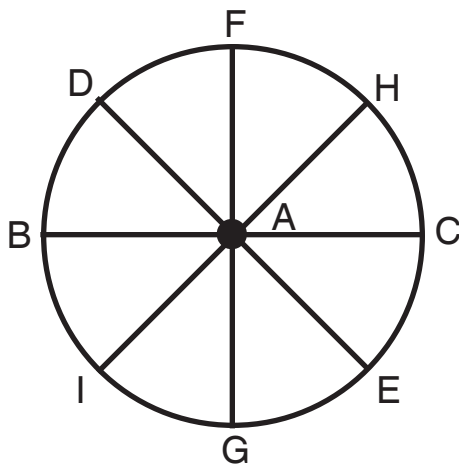
**triangle    octagon    decagon    pentagon    square**

SHAPE	NAME OF THE SHAPE	NUMBER OF SIDES	PERIMETER $s + s + s + s$
	TRIANGLE	3	$5 + 5 + 5 = 15$
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

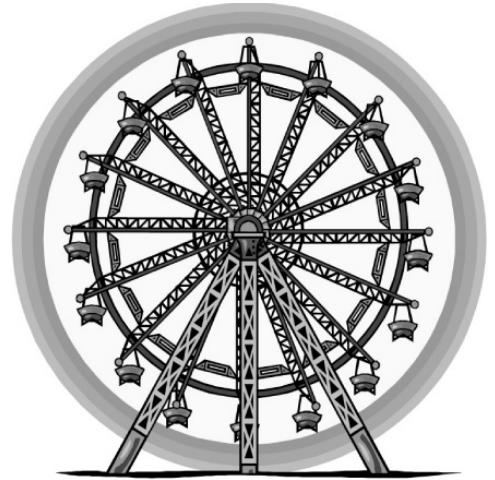
# DIAMETERS

A chord is any line segment with both endpoints on the circle. A diameter is a chord that passes through the center of the circle. Every diameter of the same circle is the same length.

Look at  $\odot A$ .  $\overline{BC}$ ,  $\overline{DE}$ ,  $\overline{FG}$ , and  $\overline{HI}$  are diameters of  $\odot A$ .

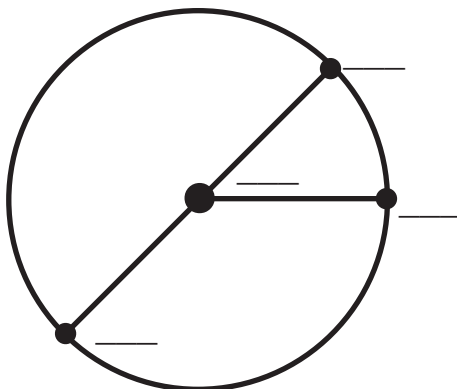


$\overline{BC} = 2"$   
 $\overline{DE} = \underline{\hspace{1cm}}"$   
 $\overline{FG} = \underline{\hspace{1cm}}"$   
 $\overline{HI} = \underline{\hspace{1cm}}"$



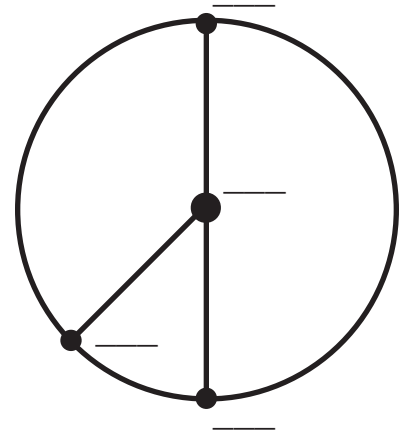
**The Game: Follow the directions.**

Label  $\odot O$ .  $\overline{NP}$  is a diameter.  $\overline{QO}$  is a radius.



$\overline{NP} = 2"$   
 $\overline{PN} = \underline{\hspace{1cm}}"$   
 $\overline{QO} = \underline{\hspace{1cm}}"$

Label  $\odot G$ .  $\overline{HI}$  is a diameter.  $\overline{JG}$  is a radius.



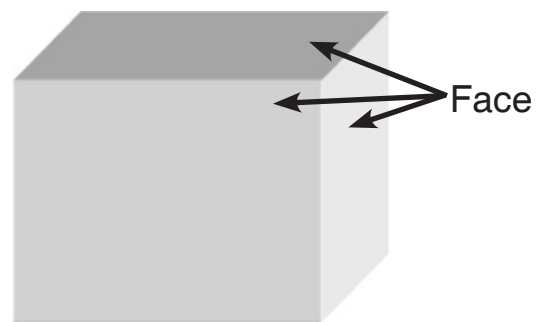
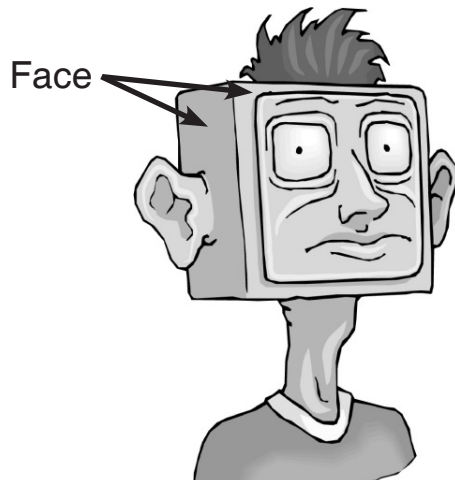
$\overline{HI} = 4 \text{ cm}$   
 $\overline{IH} = \underline{\hspace{1cm}} \text{ cm}$   
 $\overline{JG} = \underline{\hspace{1cm}} \text{ cm}$

# MANY FACES

Polyhedron is a fancy name for some space figures. Pyramids and cubes are polyhedrons. They have flat surfaces. A cube has flat surfaces, so it is a polyhedron. A sphere is round. It has a curved surface, so it is not a polyhedron.

The word "polyhedron" is a Greek word. "Poly" means "many," and "hedra" means "face."

The flat surfaces on polyhedrons are called faces. You can't see all of the faces at one time.



## The Game: Write T for TRUE or F for FALSE.

1. A polyhedron is not a space figure. \_\_\_\_\_
2. "Poly" means "many." \_\_\_\_\_
3. A polyhedron has curved surfaces. \_\_\_\_\_
4. The flat surfaces of polyhedrons are faces. \_\_\_\_\_
5. A cube is a polyhedron. \_\_\_\_\_

# CYLINDERS

A cylinder is a 3D shape that looks like a tube, a pipe, or a can of soup. A cylinder has two parallel bases that are congruent circles.

How much water will a can hold? To find the volume of a cylinder, follow these steps:

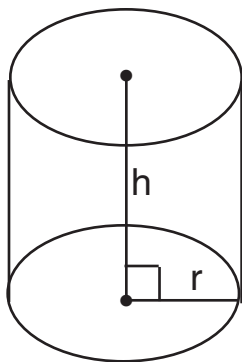
1. Square the radius.
2. Multiply by pi.
3. Multiply by the height.



The volume of a cylinder equals pi times the radius squared times the height.

$$V = \pi r^2 h$$

The radius is 5 cm. The height is 10 cm. Use a calculator and find the volume of the can.



The problem →

$$V = ?$$

The formula →

$$V = \pi r^2 h$$

Plug in what you know. →

$$V = \pi 5^2 10$$

Square the radius. →

$$5 \times 5 = 25$$

Multiply by pi. →

$$25 \times 3.14 = 78.5$$

Multiply by the height. →

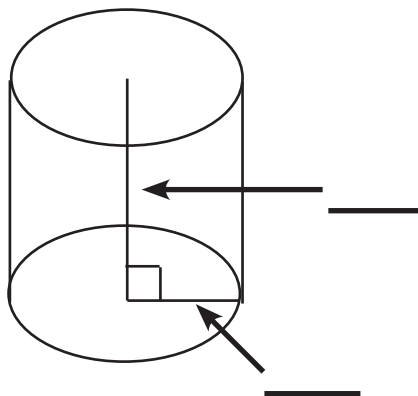
$$78.5 \times 10 = 785$$

Plug in the answer. →

$$V = 785 \text{ cc}$$

The volume of the cylinder is about \_\_\_\_\_ cubic centimeters.

**The Game: Write the measurements. The radius is 2. The height is 4.**

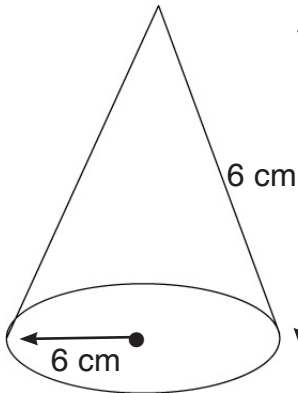


# CONES AND VOLUME

The spires on a castle are cone shaped. A spire is the top part of a tower that tapers or slims to a point.

$$V = 1/3\pi r^2 h$$

The radius is 6 cm. The height is 6 cm. What is the volume of the cone?



The problem →

$$V = ?$$

The formula →

$$V = 1/3\pi r^2 h$$

Plug in what you know. →

$$V = 1/3\pi 6^2 \times 6$$

Square the radius. →

$$6 \times 6 = \underline{\hspace{2cm}}$$

Multiply by pi. →

$$\underline{\hspace{2cm}} \times 3.14 = 113.04$$

Multiply by the height. →

$$113.04 \times 6 = 678.24$$

Multiply by 1/3. →

$$1/3(678.24) = 678.24 \div 3 = 226.08$$

Plug in the answer. →

$$V = 226.08 \text{ cc}$$

The volume is about 226.08 cubic centimeters.

## The Game: Find the volume of the spire.

Look at the spire. The radius is 6 ft. The height is 5 ft. What is the volume?



The problem →

$$V = ?$$

The formula →

$$V = 1/3\pi r^2 h$$

Plug in what you know. →

$$V = 1/3\pi 6^2 \times 5$$

Square the radius. →

$$6 \times 6 = \underline{\hspace{2cm}}$$

Multiply by pi. →

$$\underline{\hspace{2cm}} \times 3.14 = \underline{\hspace{2cm}}$$

Multiply by the height. →

$$\underline{\hspace{2cm}} \times 5 = \underline{\hspace{2cm}}$$

Multiply by 1/3. →

$$1/3(\underline{\hspace{2cm}}) = \underline{\hspace{2cm}}$$

Plug in the answer. →

$$V = \underline{\hspace{2cm}} \text{ cu ft}$$

The volume is about          cubic feet.