



Math Virtual Learning

# Grade 7/ Surface Area of Cylinders

May 15, 2020



# Grade 7/Surface Area of Cylinders

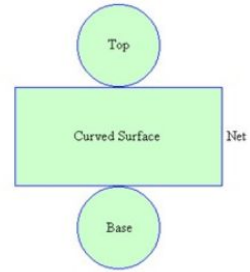
## Lesson: May 15, 2020

**Objective/Learning Target:**  
**Find surface area of cylinders.**

**Let's Get Started:**  
Watch Video: [Surface Area of Cylinder](#)

# Practice:

## Find the surface area of the cylinder.



### Surface Area of Cylinders.

To find the surface area of a cylinder, add the surface area of each end plus the surface area of the side. Each end is a circle, so the surface area of each end is  $\pi * r^2$ , where  $r$  is the radius of the end. There are two ends, so their combined surface area is  $2 \pi * r^2$ . The surface area of the side is the circumference times the height or  $2 \pi * r * h$ , where  $r$  is the radius and  $h$  is the height of the side.

The entire formula for the surface area of a cylinder is  $2 \pi r^2 + 2 \pi r h$ .

$$\text{Surface Area} = 2\pi r^2 + 2\pi r h$$

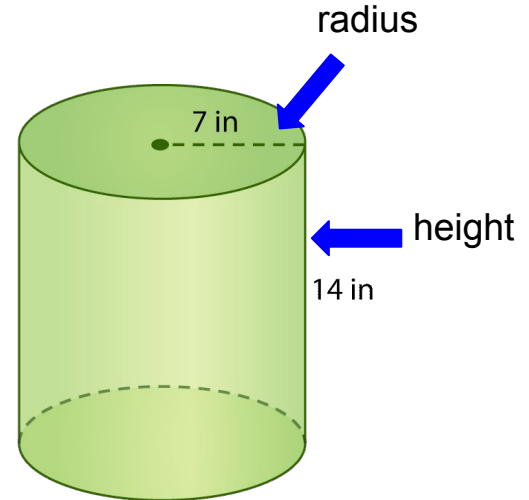
$$\text{Surface Area} = 2(3.14) 7^2 + 2(3.14)7(14)$$

$$\text{Surface Area} = 2(3.14)49 + 2(3.14)7(14)$$

$$\text{Surface Area} = 307.72 + 615.44$$

$$\text{Surface Area} = 923.16 \text{ in}^2$$

Correct Answer



# Practice:

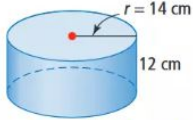
Go to this website:  
[Surface Area of Cylinder](#)

1. Look at the cylinder carefully.
2. Solve for the surface area.
3. Select the correct answer and then click “OK”.

Length  Level

Surface Area of cylinder 1

Find the Surface Area of cylinder. **Round to the nearest whole number.**



$SA = 2 \pi r^2 + 2 \pi r h$


A) 2286 cm<sup>2</sup>       C) 2291 cm<sup>2</sup>  
 B) 2289 cm<sup>2</sup>       D) 2270 cm<sup>2</sup>

OK

Right   
Wrong   
Clock

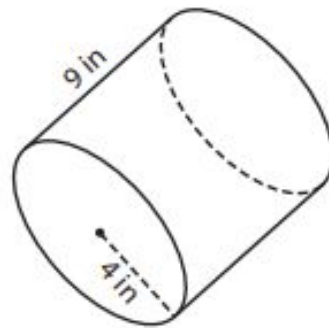
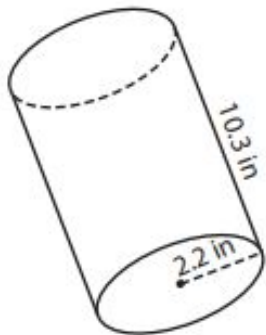
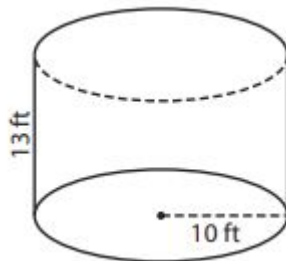
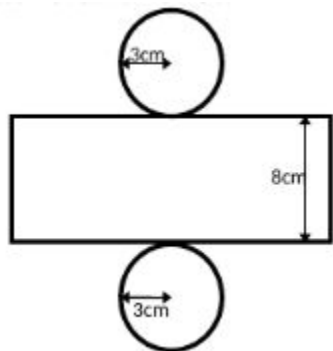
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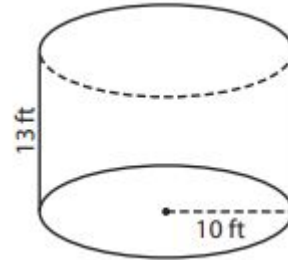
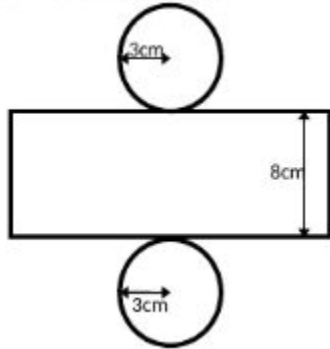
# Practice:

Answer the questions on a piece of paper.  
Find the surface area of the cylinders.



# Answer Key:

Once you have completed the problems, check your answers here.



$$\text{Surface Area} = 2\pi r^2 + 2\pi rh$$

$$\text{Surface Area} = 2(3.14)3^2 + 2(3.14)3(8)$$

$$\text{Surface Area} = 2(3.14)9 + 2(3.14)3(8)$$

$$\text{Surface Area} = 56.52 + 150.72$$

$$\text{Surface Area} = 207.24 \text{ cm}^2$$

$$\text{Surface Area} = 2\pi r^2 + 2\pi rh$$

$$\text{Surface Area} = 2(3.14)10^2 + 2(3.14)10(13)$$

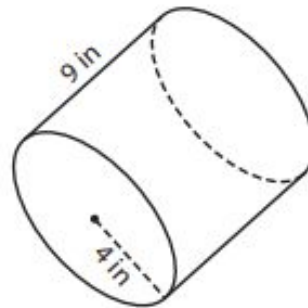
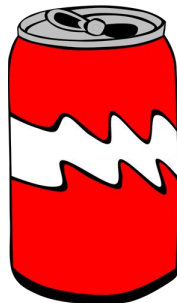
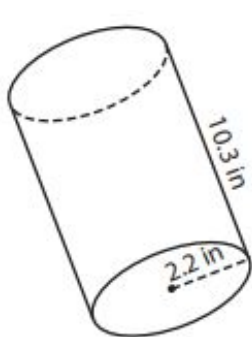
$$\text{Surface Area} = 2(3.14)100 + 2(3.14)10(13)$$

$$\text{Surface Area} = 628 + 816.4$$

$$\text{Surface Area} = 1,444.4 \text{ ft}^2$$

# Answer Key:

Once you have completed the problems, check your answers here.



$$\text{Surface Area} = 2\pi r^2 + 2\pi rh$$

$$\text{Surface Area} = 2(3.14)2.2^2 + 2(3.14)2.2(10.3)$$

$$\text{Surface Area} = 2(3.14)4.84 + 2(3.14)2.2(10.3)$$

$$\text{Surface Area} = 30.3952 + 142.3048$$

$$\text{Surface Area} = 172.7 \text{ in}^2$$

$$\text{Surface Area} = 2\pi r^2 + 2\pi rh$$

$$\text{Surface Area} = 2(3.14)4^2 + 2(3.14)4(9)$$

$$\text{Surface Area} = 2(3.14)16 + 2(3.14)4(9)$$

$$\text{Surface Area} = 100.48 + 226.08$$

$$\text{Surface Area} = 326.56 \text{ in}^2$$

# Additional Practice:

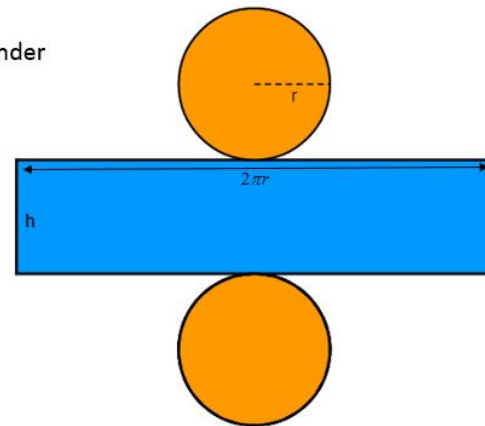
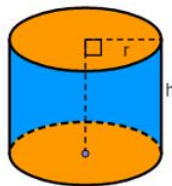
Click on the links below to get additional practice and to check your understanding!

[IXL](#) - Practice

[Quizizz](#) - Practice

The **lateral surface area** is the **area** of all sides excluding the **area** of the base. **Total surface area** of any solid is the sum of **areas** of all the faces of the solid.

Surface area of cylinder  
 $= 2\pi r^2 + 2\pi rh$

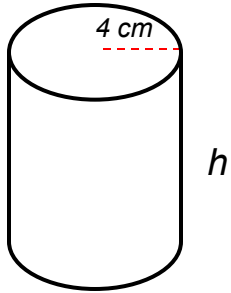




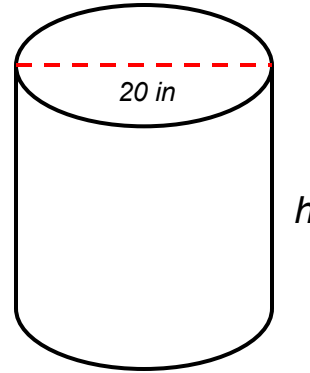
# Additional Practice: Challenge

Find the height of the cylinders.

Surface Area =  $251.2 \text{ cm}^2$



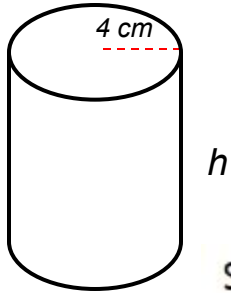
Surface Area =  $1,570 \text{ in}^2$



# Additional Practice: Challenge Answers

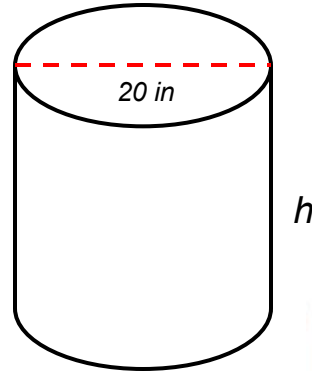
Once you have completed the problems, check your answers here.

Surface Area =  $251.2 \text{ cm}^2$



$$\begin{aligned}\text{Surface Area} &= 2\pi r^2 + 2\pi r h \\ 251.2 &= 2(3.14)4^2 + 2(3.14)4(h) \\ 251.2 &= 2(3.14)16 + 2(3.14)4(h) \\ 251.2 &= 100.48 + 25.12h \\ 251.2 - 100.48 &= 100.48 - 100.48 + 25.12h \\ 150.72 &= 25.12h \\ 150.72 \div 25.12 &= 25.12h \div 25.12 \\ 6 &= h\end{aligned}$$

Surface Area =  $1,570 \text{ in}^2$



$$\begin{aligned}\text{Surface Area} &= 2\pi r^2 + 2\pi r h \\ 1,570 &= 2(3.14)10^2 + 2(3.14)10(h) \\ 1,570 &= 2(3.14)100 + 2(3.14)10(h) \\ 1,570 &= 628 + 62.8h \\ 1,570 - 628 &= 628 - 628 + 62.8h \\ 942 &= 62.8h \\ 942 \div 62.8 &= 62.8h \div 62.8 \\ 15 &= h\end{aligned}$$