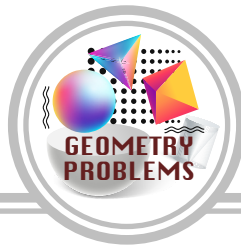


# Geometry Problems

Volume and Surface Area of Simple 3D Shapes  
Cylinders, cones, and spheres  
Math Worksheet 50



Name: \_\_\_\_\_

Find the volume and surface area of the following. Show your solutions.



$V = \pi r^2 h$   
 $S = 2\pi r h + 2\pi r^2$   
**V = Volume**  
**S = Surface Area**  
**r = radius**  
**h = height**  
 $\pi = 3.14$

CYLINDER



**Circular cone**  
 $V = \frac{1}{3} \pi r^2 h$   
**V = Volume**  
 $\pi = 3.14$   
**r = radius**  
**h = height**

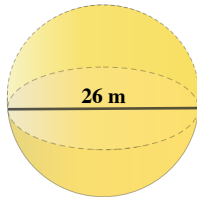
CONE

**Right cone**  
 $S = \pi r l + \pi r^2$   
**S = Surface Area**  
 $\pi = 3.14$   
**r = radius**  
**l = slant height**  
**Oblique cone (no formula)**  
slant height is not defined



$V = \frac{4}{3} \pi r^3$   
 $S = 4\pi r^2$   
**V = Volume**  
**S = Surface Area**  
 $\pi = 3.14$   
**r = radius**

SPHERE



$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} (3.14) (13)^3$$

$$= 9198.11$$

9198.11 m<sup>3</sup>

Volume

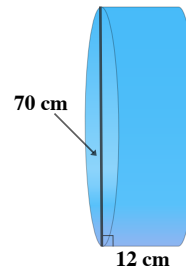
$$S = 4\pi r^2$$

$$= 4(3.14)(13)^2$$

$$= 2122.64$$

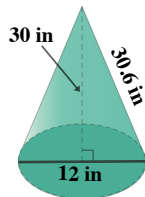
2122.64 m<sup>2</sup>

Surface Area



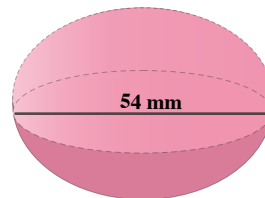
Volume

Surface Area



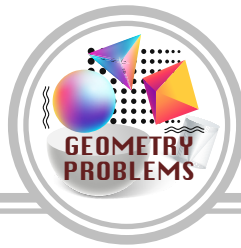
Volume

Surface Area



Volume

Surface Area



Find the volume and surface area of the following. Show your solutions.



$V = \pi r^2 h$   
 $S = 2\pi r h + 2\pi r^2$   
 $V =$  Volume  
 $S =$  Surface Area  
 $r =$  radius  
 $h =$  height  
 $\pi = 3.14$

CYLINDER



Circular cone  
 $V = \frac{1}{3} \pi r^2 h$   
 $V =$  Volume  
 $\pi = 3.14$   
 $r =$  radius  
 $h =$  height

CONE

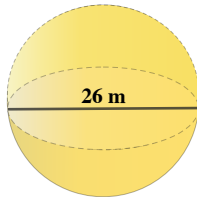
Right cone  
 $S = \pi r l + \pi r^2$   
 $S =$  Surface Area  
 $\pi = 3.14$   
 $r =$  radius  
 $l =$  slant height

Oblique cone (no formula)  
slant height is not defined



$V = \frac{4}{3} \pi r^3$   
 $S = 4\pi r^2$   
 $V =$  Volume  
 $S =$  Surface Area  
 $\pi = 3.14$   
 $r =$  radius

SPHERE



$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} (3.14) (13)^3$$

$$= 9198.11$$

**9198.11 m<sup>3</sup>**

Volume

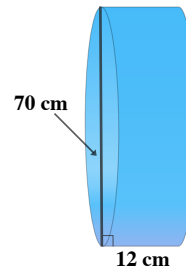
$$S = 4\pi r^2$$

$$= 4(3.14)(13)^2$$

$$= 2122.64$$

**2122.64 m<sup>2</sup>**

Surface Area



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

$$= 3.14 (35)^2 (12)$$

$$= 46158$$

**46158 cm<sup>3</sup>**

Volume

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

$$= 2(3.14)(35)(12)$$

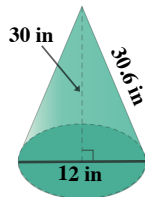
$$+ 2(3.14)(35)^2$$

$$= 2637.6 + 7693$$

$$= 10330.6$$

**10330.6 cm<sup>2</sup>**

Surface Area



$$V = \frac{1}{3} \pi r^2 h$$

$$= \frac{1}{3} (3.14)(6)^2(30)$$

$$= 1130.40$$

**1130.40 in<sup>3</sup>**

Volume

$$S = \pi r l + \pi r^2$$

$$= 3.14 (6)(30.6)$$

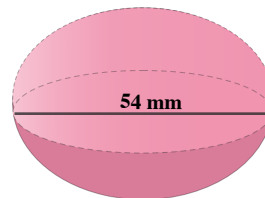
$$+ (3.14)(6)^2$$

$$= 576.50 + 113.04$$

$$= 689.54$$

**689.54 in<sup>2</sup>**

Surface Area



$$V = \frac{4}{3} \pi r^3$$

$$= \frac{4}{3} (3.14) (27)^3$$

$$= 82406.16$$

**82406.16 mm<sup>3</sup>**

Volume

$$S = 4\pi r^2$$

$$= 4(3.14)(27)^2$$

$$= 9156.24$$

**9156.24 mm<sup>2</sup>**

Surface Area