

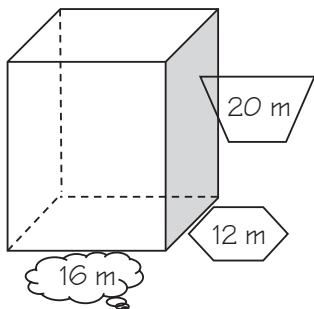
5.13.5 WS

Surface Area of Prisms and Cylinders

Surface Area Formulas: Lateral Area:  $L = Ph$ , where  $P$  = perimeter of base and  $h$  = height of prism  
 Total Area:  $S = L + 2B$ , where  $B$  = area of base

Find the lateral and total surface areas of each prism. For rectangular prisms, assume the base is on the bottom.

1.



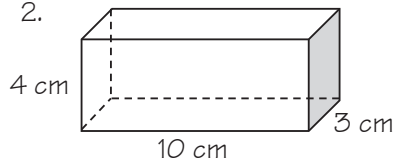
Perimeter of base:  $P = 2(\text{thought bubble}) + 2(\text{hexagon}) = \text{oval} \text{ m}$

Lateral Area:  $L = \text{oval} \cdot \text{trapezoid} = \text{rectangle} \text{ m}^2$

Area of base:  $B = \text{thought bubble} \cdot \text{hexagon} = \text{rectangle} \text{ m}^2$

Total Area:  $S = \text{rectangle} + 2 \cdot \text{rectangle} = \text{ribbon} \text{ m}^2$

2.



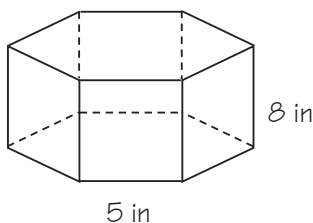
Perimeter of base:  $P = 2(\text{blank}) + 2(\text{blank}) = \text{blank} \text{ cm}$

Lateral Area:  $L = \text{blank} \cdot \text{blank} = \text{blank} \text{ cm}^2$

Area of base:  $B = \text{blank} \cdot \text{blank} = \text{blank} \text{ cm}^2$

Total Area:  $S = \text{blank} + 2 \cdot \text{blank} = \text{blank} \text{ cm}^2$

3.

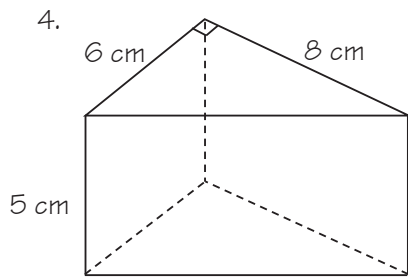


Perimeter of base:  $6 \cdot \text{blank} = \text{blank} \text{ in}$

Lateral Area:  $L = \text{blank} \cdot \text{blank} = \text{blank} \text{ in}^2$

Area of base:  $B = 6 \left( \frac{\text{blank}^2 \sqrt{3}}{4} \right) = 6 \left( \frac{\text{blank} \sqrt{3}}{4} \right) = \text{blank} \text{ in}^2$

Total Area:  $S = \text{blank} + 2 \cdot \text{blank} = \text{blank} \text{ in}^2$



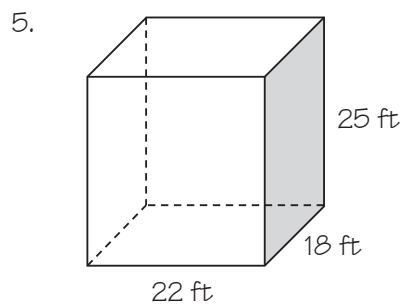
Hypotenuse:  $c = \sqrt{\quad^2 + \quad^2} = \quad \text{cm}$

Perimeter of base:  $P = \quad + \quad + \quad = \quad \text{cm}$

Lateral Area:  $L = \quad \cdot \quad = \quad \text{cm}^2$

Area of base:  $B = \frac{\quad \cdot \quad}{2} = \frac{\quad}{2} = \quad \text{cm}^2$

Total Area:  $S = \quad + 2 \cdot \quad = \quad \text{cm}^2$



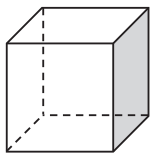
Perimeter of base:  $P = \underline{\hspace{2cm}}$

Lateral Area:  $L = \underline{\hspace{2cm}}$

Area of base:  $B = \underline{\hspace{2cm}}$

Total Area:  $S = \underline{\hspace{2cm}}$

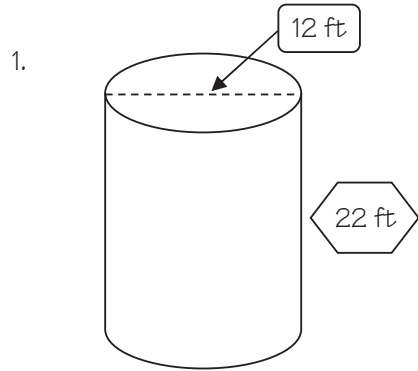
6. A square-based prism has a lateral area of 168 in<sup>2</sup>. If the height of the prism is 6 in., what is the area of the base and the total surface area?



$P(6) = 168$

7. Each **side** of the base of a **pentagonal** prism is 16 m. If the **lateral area** is 240 m<sup>2</sup>, what is the **height** of the prism?

Find the lateral and total surface area of each cylinder. Leave answers in terms of  $\pi$  unless otherwise noted.



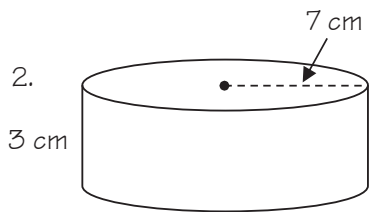
Circumference:  $C = \pi(\text{_____}) = \text{_____ ft}$

Lateral Area:  $L = \text{_____} \cdot \text{_____} = \text{_____ ft}^2$

Radius:  $r = \frac{\text{_____}}{2} = \text{_____ ft}$

Area of base:  $B = \pi(\text{_____})^2 = \text{_____ ft}^2$

Total Area:  $S = \text{_____} + 2 \cdot \text{_____} = \text{_____ ft}^2$

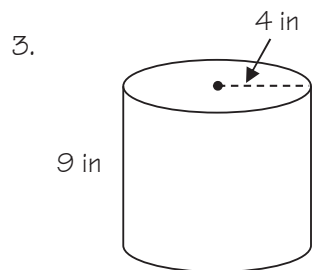


Circumference:  $2 \cdot \pi \cdot \text{_____} = \text{_____ cm}$

Lateral Area:  $L = \text{_____} \cdot \text{_____} = \text{_____ cm}^2$

Area of base:  $B = \pi \cdot \text{_____}^2 = \text{_____ cm}^2$

Total Area:  $S = \text{_____} + 2 \cdot \text{_____} = \text{_____ cm}^2$



Circumference:  $C = \text{_____}$

Lateral Area:  $L = \text{_____}$

Area of Base:  $B = \text{_____}$

Total Area:  $S = \text{_____}$

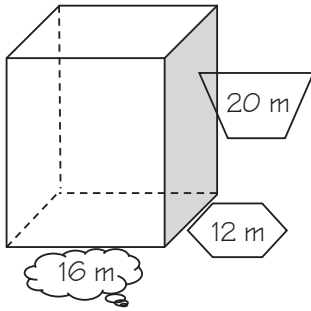
4. A **cylinder** has a **radius** of 12.5 m and a **lateral area** of  $600\pi \text{ m}^2$ . What is the **height** of the cylinder?

5.13.4 WS  
Volume of Prisms

$$V = Bh$$

Find the volume of each prism (leave answers in simplified radicals as necessary).

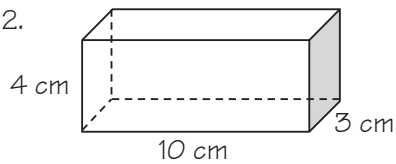
1.



Area of base:  $B =$   $\cdot$   $=$   $m^2$

Volume:  $V =$   $\cdot$   $=$   $m^3$

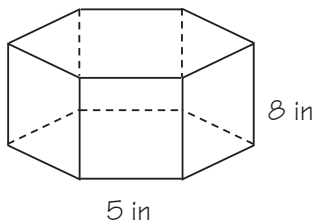
2.



Area of base:  $B =$   $\cdot$   $=$   $cm^2$

Volume:  $V =$   $\cdot$   $=$   $cm^3$

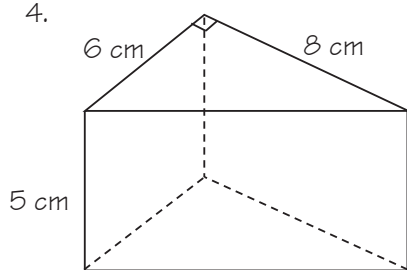
3.



Area of base:  $B = 6 \left( \frac{\quad^2 \sqrt{3}}{4} \right) = 6 \left( \frac{\quad \sqrt{3}}{4} \right) =$   $in^2$

Volume:  $V =$

4.



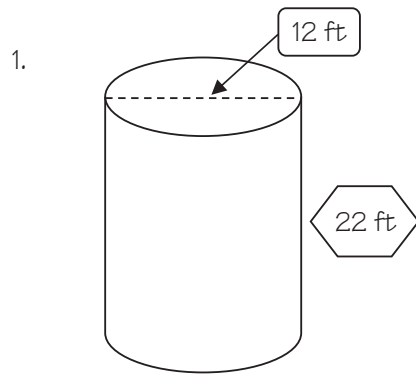
Area of base:

Volume:

5. A **square**-based prism has a **volume** of 605 ft<sup>3</sup>. If the **height** of the prism is 5 feet, what is the **side length** of the base?

## Volume of Cylinders

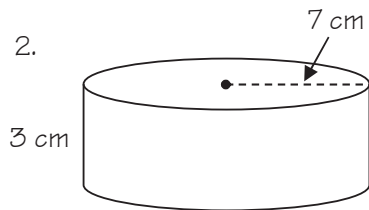
Find the volume of each cylinder. Leave answers in terms of  $\pi$  as necessary.



Radius:  $r = \frac{\boxed{\phantom{000}}}{2} = \boxed{\phantom{000}} \text{ ft}$

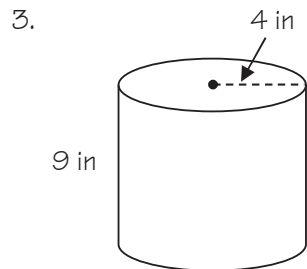
Area of base:  $B = \pi(\boxed{\phantom{000}})^2 = \boxed{\phantom{000}} \text{ ft}^2$

Volume:  $V = \boxed{\phantom{000}} \cdot \boxed{\phantom{000}} = \boxed{\phantom{000}} \text{ ft}^3$



Area of base:  $B = \pi(\underline{\hspace{2cm}})^2 = \underline{\hspace{2cm}} \text{ cm}^2$

Volume:  $V = \underline{\hspace{2cm}} \cdot \underline{\hspace{2cm}} = \underline{\hspace{2cm}} \text{ cm}^3$



Area of base:  $\underline{\hspace{2cm}}$

Volume:  $\underline{\hspace{2cm}}$

4. A **cylinder** has a radius of 12 m and **volume** of  $360\pi \text{ m}^3$ . What is the **height** of the cylinder?