

12.4 Volume of Prisms & Cylinders

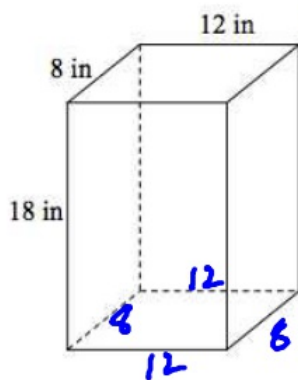
$$V = Bh$$

B : Area of the base

h : height

Examples: Find the volume of the following figures. Leave answers in terms of π when necessary.

1)



Rect. Prism

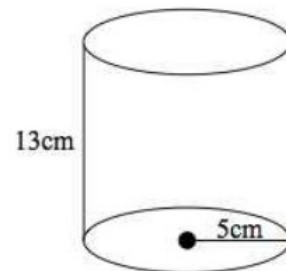
$$V = Bh$$

$$V = (l \cdot w)h$$

$$V = (12 \cdot 8)(18)$$

$$V = \underline{1728 \text{ in}^3}$$

2)



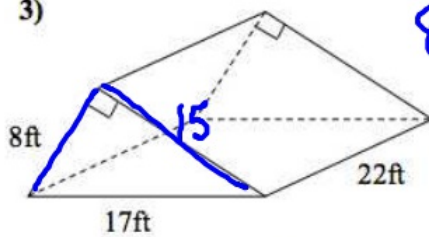
$$V = Bh$$

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

$$V = \pi (5)^2 (13)$$

$$V = \underline{325\pi \text{ cm}^3}$$

3)



$$8^2 + b^2 = 17^2$$

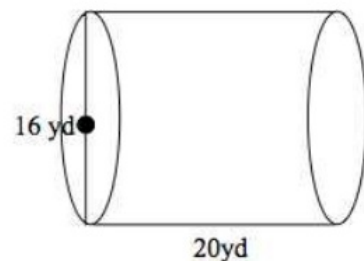
$$V = Bh$$

$$V = \left(\frac{1}{2} \cdot 8 \cdot 15\right) 22$$

$$V = (60) \times 22$$

$$V = \underline{1320 \text{ ft}^3}$$

4)



$$V = Bh$$

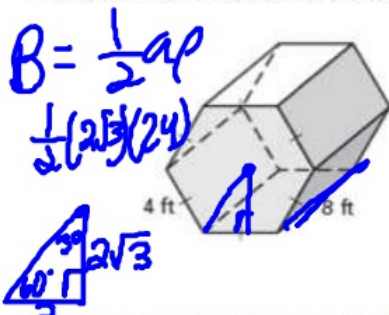
$$V = \pi r^2 h$$

$$V = \pi (16)^2 \cdot 20$$

$$V = \underline{1280\pi \text{ yd}^3}$$

Examples #5 Find the volume of the following figures.

V = _____

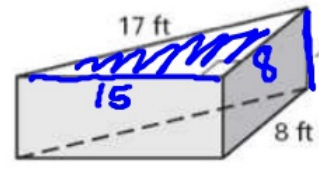
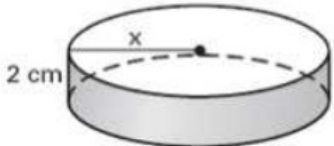


hexagonal-prism
 $V = Bh$
 $V = (\frac{1}{2} \cdot 2\sqrt{3} \cdot 4) 8$
 $V = 192\sqrt{3} \text{ ft}^3 \approx 332.55 \text{ ft}^3$

Example #6: Find the indicated measure, x, given the solid's volume.

A. $V = 72\pi \text{ cm}^3$

B. $V = 360 \text{ ft}^3$

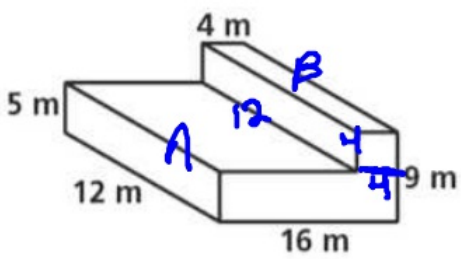


$8^2 + b^2 = 17^2$
 $64 + b^2 = 289$
 $b^2 = 225$
 $b = 15$

$V = Bh$
 $72\pi = \pi r^2 h$
 $72\pi = \pi x^2 (2)$
 $\frac{72\pi}{2\pi} = \frac{\pi x^2}{2\pi}$
 $\sqrt{36} = \sqrt{x^2}$
 $x = 6 \text{ cm}$

$V = Bh$
 $V = (\frac{1}{2} \cdot b \cdot h) h$
 $360 = (\frac{1}{2} \cdot 8 \cdot 15) x$
 $\frac{360}{60} = \frac{60x}{60}$
 $x = 6 \text{ ft}$

Example #6: Find the volume.



A B
 $(12)(5)(4) + (12)(4)(4)$
 $240 + 192$
 432 m^3