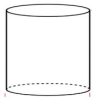
Friday, May 29, 2020

Sec 11-4: Volume of a Cylinder

Volume of a Prism: $V = Bh$

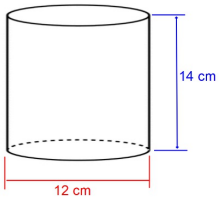
Volume of a Cylinder: $V = Bh$



Base is a circle
(Area of a circle = πr^2)

Volume of a Cylinder: $\boxed{V = \pi r^2 h}$

Find the volume of this cylinder. Give your answer in terms of π.



14 = height of cylinder

12 = diameter of the Base

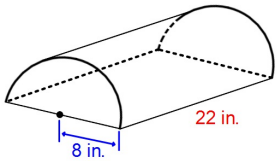
Find radius of the base:

$r = 12 \div 2 = \boxed{6 \text{ cm}}$

$V = \pi r^2 h$

$V = \pi(6)^2(14) = \boxed{504\pi \text{ cm}^3}$

Find the volume of this half cylinder to the nearest hundredth.



$V = Bh$

22 = height of the cylinder

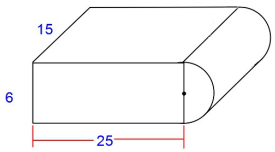
8 = radius of the base

$B = \frac{1}{2}\pi r^2 = \frac{1}{2}\pi (8)^2$

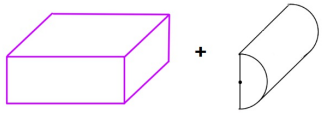
$B = 32\pi \text{ in}^2$

$V = Bh = (32\pi \text{ in}^2)(22 \text{ in}) = 704\pi = \boxed{2211.68 \text{ in}^3}$

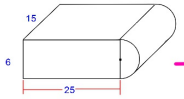
Find the volume of this solid to the nearest hundredth.



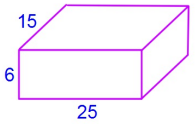
This is a Composite Solid:
made up of 2 or more solids.



Rectangular Prism + Half a Cylinder



Rectangular Prism



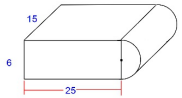
$V = Bh$

$h = 6$

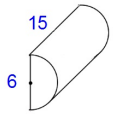
$B = (25)(15) = 375$

Vol of Rect Prism:

$V = (375)(6) = 2250$



Half a Cylinder



$V = Bh$

$h = 15$

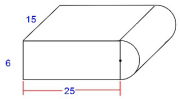
$B = \frac{1}{2}\pi r^2 = \frac{1}{2}\pi(3)^2 = \frac{1}{2}(9\pi) = 4.5\pi$

$r = 6 \div 2 = 3$

Vol of 1/2 cylinder

$V = Bh = (4.5\pi)(15)$

$= 67.5\pi$



Total Vol = Vol of rect prism + Vol of 1/2 cylinder

$= 2250 + 67.5\pi = 2462.06$

The Volume of a Cylinder with height of 16 cm is 600 cm^3.
Find the radius of the Cylinder to the nearest hundredth.

$V = \pi r^2 h$

$V = 600\ cm^3$

$h = 16\ cm$

$\frac{600}{16} = \frac{\pi r^2 (16)}{16}$

$\frac{37.5}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{r^2} = \sqrt{\frac{37.5}{\pi}}$

$r = 3.45\ cm$

You can Finish Practice #26.

Practice #26 will be due on Sunday, May 31 by 10:00 pm