Tuesday, June 2, 2020

Sec 11-5: Volumes of Pyramids & Cones.
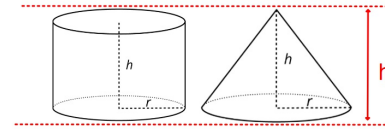
Just as with the relationship between the volume of a Prism and a Pyramid with the same Base
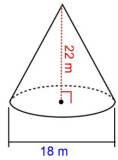
Volume of Cylinder = (3)(Volume of Cone)

Volume of a Cylinder: $V = Bh = \pi r^2 h$

Volume of a Cone:

$V = \dfrac{1}{3}$ (Volume of Cylinder)

$Vol = \dfrac{1}{3} Bh = \dfrac{1}{3}\pi r^2 h$

Find the volume of this cone. Leave your answer in terms of π.
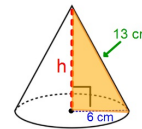
$V = \dfrac{1}{3}\pi r^2 h$

22 = h

18 = diameter

r = 18÷2

r = 9 m

$V = \dfrac{1}{3}\pi(9)^2(22)$

$V = 594\pi \text{ m}^3$

Find the volume of this cone to the nearest hundredth.
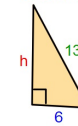
$V = \dfrac{1}{3}\pi r^2 h$

6 = r

13 = ℓ (slant height)

Now we need height of the cone (h).

$h^2 + 6^2 = 13^2$

$\sqrt{h^2} = \sqrt{13^2 - 6^2}$

h = 11.53 cm

$V = \dfrac{1}{3}\pi(6)^2(11.53) =$ 434.67 cm^3

The radius of the base of a cone is 5 cm.
If the volume of this cone is 180 cm^3 find the height.

$V = \dfrac{1}{3}\pi r^2 h$ V = 180   r = 5

$180 = \dfrac{1}{3}\pi(5)^2 h$

$180 = \dfrac{1}{3}25\pi h$

$3\cdot180 = \dfrac{1}{3}25\pi h \cdot 3$

$540 = 25\pi h$

$\dfrac{540}{25\pi} = \dfrac{25\pi h}{25\pi}$

h = 6.88 cm

You can do the next three problems
on Practice #27.

Practice #27 will be due on Sunday, June 7 by 10:00 pm