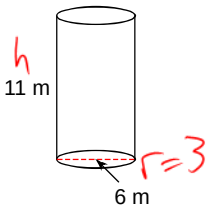
Math 9 Unit 5:Measurement Name Mr. Hagen

Lesson #3. Cylinders and Cones

Date Feb 5, 2018

Draw the net, then calculate the surface area and volume of each figure. Round to the nearest tenth.

1)



Net:

circumference = $2\pi r$

$S.A. = 2\pi r^2 + 2\pi rh$ (l, w)

$S.A. = 2(3.14)(3^2) + 2(3.14)(3)(11)$

$S.A. = 56.52 + 207.24$

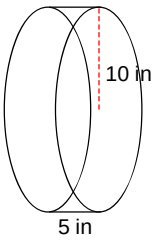
$S.A = 263.76 m^2$

$V = \pi r^2 h$

$V = (3.14)(3^2)(11)$

$V = 310.86 m^3$

2)



$r = 10$

$h = 5$

$S.A. = 2\pi r^2 + 2\pi rh$

$S.A. = 2(3.14)(10^2) + 2(3.14)(10)(5)$

$S.A. = 628 + 314$

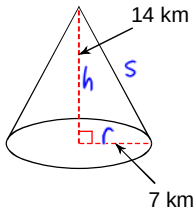
$S.A = 942 in^2$

$V = \pi r^2 h$

$V = (3.14)(10^2)(5)$

$V = 1570 in^3$

3)



$r = 7$

$h = 14$

Net:

recall $a^2 + b^2 = c^2$

$r^2 + h^2 = s^2$

$7^2 + 14^2 = s^2$

$49 + 196 = s^2$

$\sqrt{245} = \sqrt{s^2}$

$15.65 = s$

$S.A. = \pi r^2 + \pi r s$

$S.A. = (3.14)(7^2) + (3.14)(7)(15.65)$

$S.A = 153.86 + 343.99$

$S.A. = 497.85\ km^2$

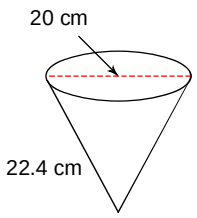
$V = \frac{\pi r^2 h}{3}$

A cone is a third of a cylinder.

$V = \frac{(3.14)(7^2)(14)}{3}$

$V = \frac{2154.04}{3} = 718.01\ km^3$

4)



$r = 10$

$S = 22.4$

$h = ??$

① $S.A. = \pi r^2 + \pi r s$

$S.A. = (3.14)(10^2) + 3.14(10)(22.4)$

$S.A. = 314 + 703.36$

$S.A = 1017.36 cm^2$

② Get h.

$r^2 + h^2 = s^2$

$10^2 + h^2 = 22.4^2$

$100 + h^2 = 501.76$

$\sqrt{h^2} = \sqrt{401.76}$

$h = 20 cm$

③ $V = \frac{\pi r^2 h}{3}$

$V = \frac{(3.14)(10^2)(20)}{3} = \frac{6280}{3} = 2093.33 cm^3$

5) A Cylinder has a volume of $2769.48 cm^3$ with a height of $18 cm$. What is the length of the radius?

$V = \pi r^2 h$

$2769.48 = (3.14) r^2 (18)$ (multiply)

$\frac{2769.48}{56.52} = \frac{56.52 r^2}{56.52}$

$\sqrt{49} = \sqrt{r^2}$

$7 cm = r$