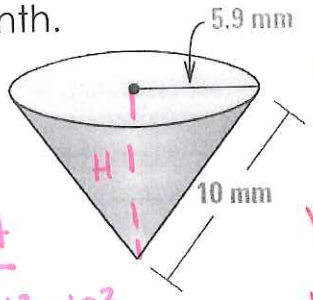
Name: _____ Hour: _____

# Basic Surface Area and Volume of CONES
## Homework

Find the volume and surface area of the solid. Round to the nearest tenth.

**1.**




Find H

$5.9^2 + H^2 = 10^2$

$H = 8.1$ mm

$SA = \pi r^2 + \pi r \ell$

$= \pi 5.9^2 + \pi 5.9 \cdot 10$

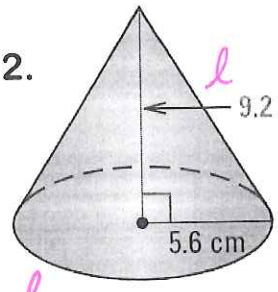
SA= 799.5 $mm^2$

$V = \frac{1}{3} B \cdot H = \frac{1}{3} \pi r^2 H$

$V = \frac{1}{3} \pi 5.9^2 \cdot 8.1$

V = 295.3 $mm^3$

**2.**




Find ℓ

$5.6^2 + 9.2^2 = \ell^2$

$\ell = 10.8$ cm

$SA = \pi r^2 + \pi r \ell$

$= \pi 5.6^2 + \pi 5.6 \cdot 10.8$

SA= 288.5 $cm^2$

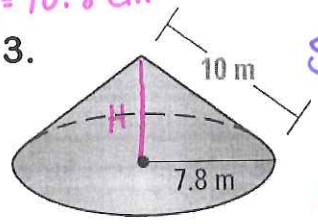
$V = \frac{1}{3} \pi r^2 H$

$= \frac{1}{3} \pi 5.6^2 \cdot 9.2$

V = 302.2 $cm^3$

SA= 436.2 $m^2$

**3.**




Find H

$7.8^2 + H^2 = 10^2$

$H = 6.2$ m

$SA = \pi r^2 + \pi r \ell$

$= \pi 7.8^2 + \pi 7.8 \cdot 10$

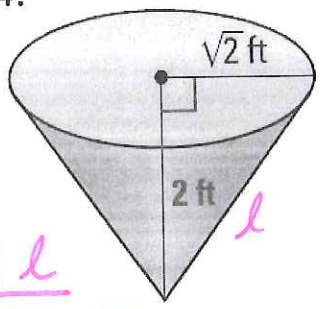
V = 394.9 $m^3$

$V = \frac{1}{3} \pi r^2 H$

$= \frac{1}{3} \pi 7.8^2 \cdot 6.2$

SA= 17.0 $ft^2$

**4.**




Find ℓ

$2^2 + \sqrt{2}^2 = \ell^2$

$\ell = 2.4$ ft

$SA = \pi r^2 + \pi r \ell$

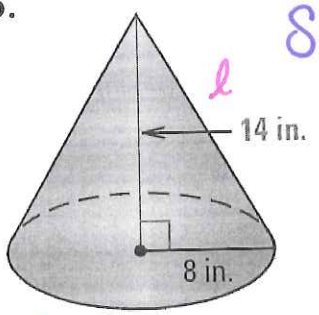
$= \pi \sqrt{2}^2 + \pi \sqrt{2} \cdot 2.4$

V = 4.1 $ft^3$

$V = \frac{1}{3} \pi r^2 H$

$= \frac{1}{3} \pi \sqrt{2}^2 \cdot 2$

5.




$SA = \pi r^2 + \pi r \ell$

$= \pi 8^2 + \pi 8 \cdot 16.1$

SA= $605.7\ in^2$

$V = \frac{1}{3}\pi r^2 H$

$= \frac{1}{3}\pi 8^2 \cdot 14$

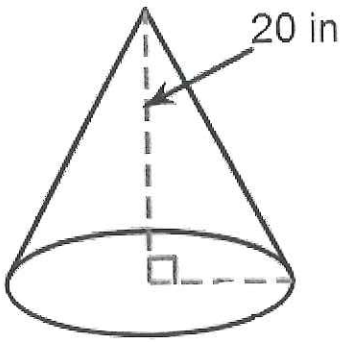
V= $938.3\ in^3$

Find $\ell$

$14^2 + 8^2 = \ell^2$

$\ell = 16.1$ in

6. Use the cone below to find the radius if the volume is 523.6 $in^3$.




$523.6 = \frac{1}{3}\pi r^2 \cdot 20$

$\frac{523.6}{6.7\pi} = \frac{6.7\pi r^2}{6.7\pi}$

$\sqrt{24.9} = \sqrt{r^2}$

$r = 5$ in.

7. Find the slant height of the cone below if the surface area is 90 $\pi$ $cm^2$.

$90\pi = \pi 5^2 + \pi 5\ell$

$90\pi = 25\pi + 5\pi\ell$

$\frac{65\pi}{5\pi} = \frac{5\pi\ell}{5\pi}$

$\ell = 13$ cm