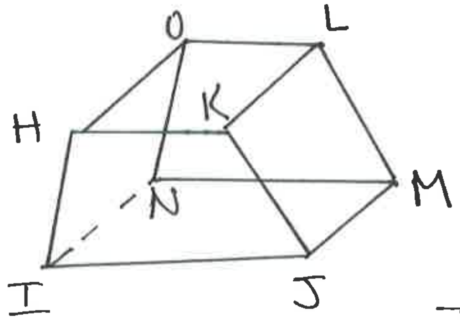
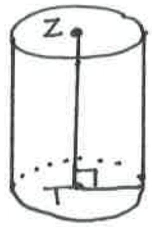
1-7 Practice

1.)



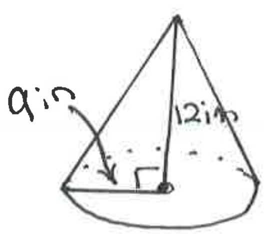
This is a polyhedron.
It is a quadrilateral prism.
The bases are HKJI and OLMN.
The edges are $\overline{HI}$, $\overline{IJ}$, $\overline{JK}$, $\overline{KH}$, $\overline{LM}$, $\overline{MN}$, $\overline{NO}$, $\overline{OL}$, $\overline{HO}$, $\overline{KL}$, $\overline{JM}$, $\overline{IN}$
The vertices are H, I, J, K, L, M, N, O

2.)



This is <u>not</u> a polyhedron.
This is a cylinder.

3.)



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

$\ell = ?$ $\quad r = 9\text{in}$

Since this is a right Δ, find ℓ by $a^2 + b^2 = c^2$

$9^2 + 12^2 = \ell^2$

$81 + 144 = \ell^2$

$225 = \ell^2$

$15 = \ell$

$S = \pi(9)(15) + \pi(9)^2$

$S = 135\pi + 81\pi$

$S = 216\pi \text{ in}^2$

$S \approx 678.6 \text{ in}^2$

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

$r = 9\text{in}$ $\quad h = 12\text{in}$

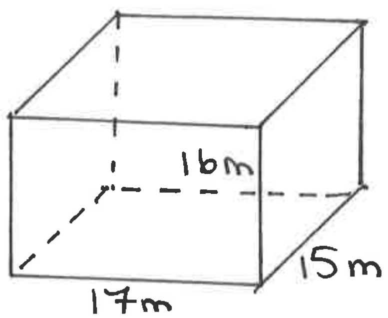
$V = \frac{1}{3}\pi(9)^2(12)$

$V = \frac{1}{3} \cdot 81 \cdot 12 \cdot \pi$

$V = 324\pi \text{ in}^3$

$V \approx 1017.9 \text{ in}^3$

4.)



$S = Ph + 2B$ $\quad V = Bh$

$S = 64 \cdot 16 + 2(255)$ $\quad V = 255 \cdot 16$

$S = 1024 + 510$ $\quad V = 4080\ m^3$

$S = 1534\ m^2$

$P = 2l + 2w$

$l = 17m \quad w = 15m$

$P = 2(17) + 2(15)$

$P = 34 + 30$

$P = 64\ m$

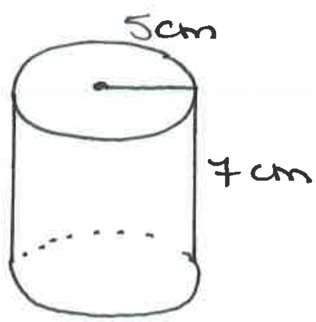
$h = 16\ m$

$B = lw$

$B = 17(15)$

$B = 255\ m^2$

5.)



$S = 2\pi r h + 2\pi r^2$ $\quad V = \pi r^2 h$

$r = 5cm \quad h = 7cm$ $\quad V = \pi(5)^2(7)$

$S = 2\pi(5)(7) + 2\pi(5)^2$ $\quad V = 175\pi\ cm^3$

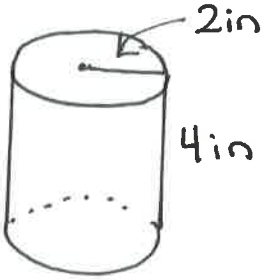
$V \approx 549.8\ cm^3$

$S = 70\pi + 50\pi$

$S = 120\pi\ cm^2$

$S \approx 377.0\ cm^2$

6.)



$V = \pi r^2 h$

$r = 2\text{in} \quad h = 4\text{in}$

$V = \pi (2)^2 (4)$

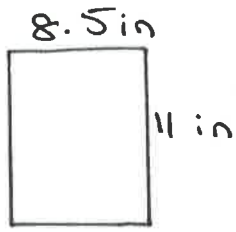
$V = 16\pi \text{ in}^3$

$V \approx 50.3 \text{ in}^3$

The volume of the soup can is about 50.3 in^3.

7.) boxes are prisms, so $V = Bh$

the base is



$l = 11$

$w = 8.5$

$B = lw$

$B = 11(8.5)$

$B = 93.5 \text{ in}^2$

if V should be 500 in^3

$V = Bh$

$500 = 93.5h$

$\frac{500}{93.5} = h$

$h \approx 5.3\text{in}$

The height of the box should be about 5.3 inches.