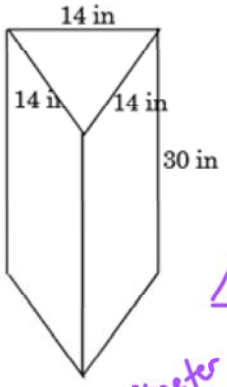
Prism Notes

Nearest tenth.

Objective: Find the volume and surface area of prism.

1.



B = area of base.

The base is a triangle

so $B = \frac{1}{2}bh$

$B = \frac{1}{2}(14)(7\sqrt{3}) = 49\sqrt{3}\ in^2 \approx 84.9\ in^2$

P = perimeter of Δ base

$P = 14 \cdot 3 = 42''$

$LA = p \cdot h = 42(30) = 1260\ in^2$

$V = B \cdot h = (49\sqrt{3})(30) \approx 2546.1\ in^3$

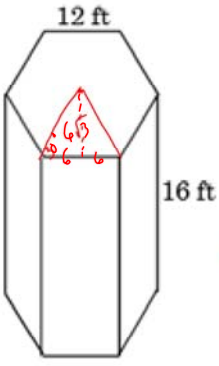
$SA = 2B + LA = 2(49\sqrt{3}) + 1260 \approx 1429.7\ in^2$

In LA/V:

h = height of prism = 30"

Objective: Find the volume and surface area of prism.

2.



B — base is a hexagon.

$B = \left(\frac{1}{2}(12)(6\sqrt{3})\right)6 = 216\sqrt{3}\ ft^2 \approx 374.1\ ft^2$

$LA = p \cdot h = 72(16) = 1152\ ft^2$

$V = B \cdot h = (216\sqrt{3})(16) \approx 5986.0\ ft^3$

$SA = 2B + LA = 2(216\sqrt{3}) + 1152 \approx 1900.2\ ft^2$

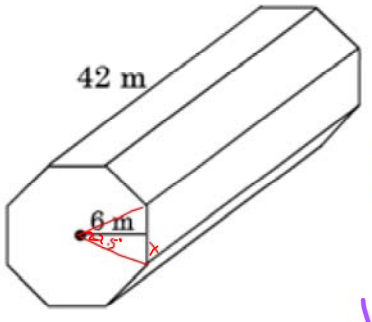
$P = 12(6) = 72$

↑ perimeter of hexagon

h = height of prism = 16'

Objective: Find the volume and surface area of prism.

3.



B – octagon

$B = \left(\frac{1}{2}(4.9706)(6)\right)8 \approx 119.3\ m^2$

119.2944

$LA = p \cdot h = (39.7645)(42)$

$= 1670.109 \approx 1670.1\ m^2$

$V = B \cdot h = (119.2944)(42) \approx 5010.4\ m^3$

$SA = 2B + LA = 2(119.2944) + 1670.109$

$\approx 1908.7\ m^2$

$360 \div 8 = 45°$

$\frac{45}{2} = 22.5$

$6 \cdot \tan 22.5° = \frac{x}{6} \cdot 6$

$x = 6 \cdot \tan 22.5° = 2.4853$

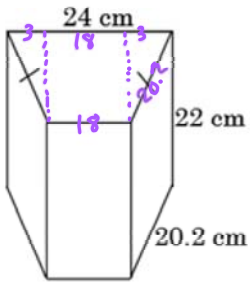
$\times 2$

4.9706

$p = (4.9706)8 = 39.7645$

Objective: Find the volume and surface area of prism.

4.



B – trapezoid

$B = \frac{1}{2}h(b_1 + b_2)$ h here is height of trap.

$B = \frac{1}{2}(19.9760)(18+24) \approx 419.5\ cm^2$

419.4957

$LA = ph = 82.4(22) = 1812.8\ cm^2$

$V = B \cdot h = (419.4957)(22) \approx 9228.9\ cm^3$

$SA = 2B + LA = 2(419.4957) + 1812.8$

$\approx 2651.8\ cm^2$

to get height of trapezoid

$3^2 + b^2 = 20.2^2$

$9 + b^2 = 408.04$

$b^2 = 399.04$

$b \approx 19.9760$

P of trapezoid

$p: 18 + 24 + 20.2 + 20.2$

$p = 82.4$