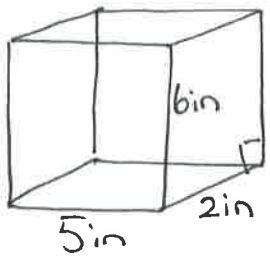
Geometry
Lesson 1.7
#18-23

18.)




rectangular prism

$S = Ph + 2B$

$P = 2l + 2w$

$l = 5 \quad w = 2$

$P = 2(5) + 2(2)$

$P = 14$ in

$h = 6$ in

$B = lw$

$B = 5(2)$

$B = 10\text{ in}^2$

$S = 14\text{ in}(6\text{ in}) + 2(10\text{ in}^2)$

$= 84\text{ in}^2 + 20\text{ in}^2$

$S = 104\text{ in}^2$

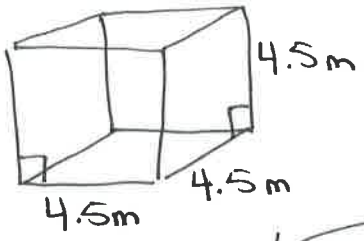
$V = Bh$

$B = 10\text{ in}^2 \quad h = 6\text{in}$

$V = (10\text{ in}^2)(6\text{ in})$

$V = 60\text{ in}^3$

19.)




rectangular prism

$S = Ph + 2B$

$P = 2l + 2w$

$l = 4.5 \quad w = 4.5$

$P = 2(4.5) + 2(4.5)$

$P = 18\text{ m}$

$h = 4.5\text{ m}$

$B = lw$

$B = 4.5^2$ $\quad B = 20.25\text{ m}^2$

$S = (18\text{m})(4.5\text{m}) + 2(20.25\text{m}^2)$

$= 81\text{ m}^2 + 40.5\text{ m}^2$

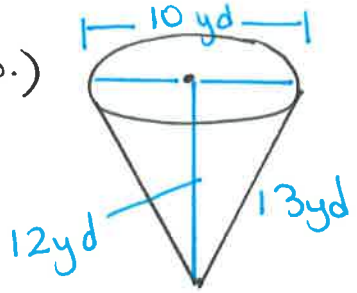
$S = 121.5\text{ m}^2$

$V = Bh$

$= 20.25\text{ m}^2(4.5\text{m})$

$V = 91.1\text{ m}^3$

20.)




cone

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

$r = 5\text{yd}$ $l = 13\text{yd}$

$S = \pi(5)(13) + \pi(5)^2$

$= 65\pi + 25\pi$

$S = 90\pi\ \text{yd}^2$

$S \approx 282.7\ \text{yd}^2$

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

$r = 5\text{yd}$ $h = 12\text{yd}$

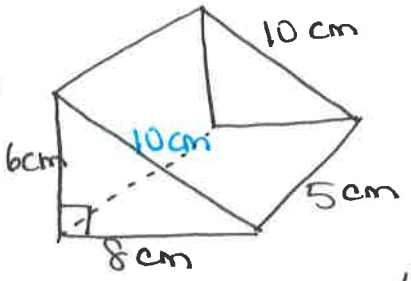
$V = \frac{1}{3}\pi(5)^2(12)$

$V = \frac{1}{3}(25)(12)\pi$

$V = 100\pi\ \text{yd}^3$

$V \approx 314.2\ \text{yd}^3$

21.)




prism (triangular)

$S = Ph + 2B$

$P = S_1 + S_2 + S_3$

$P = 6\text{cm} + 8\text{cm} + 10\text{cm}$

$P = 24\text{cm}$

$h = 5\text{cm}$

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

$b = 8$ $h = 6$

$B = \frac{1}{2}(8)(6)$

$B = 24\text{cm}^2$

$S = 24\text{cm}(5\text{cm}) + 2(24\text{cm}^2)$

$S = 120\text{cm}^2 + 48\text{cm}^2$

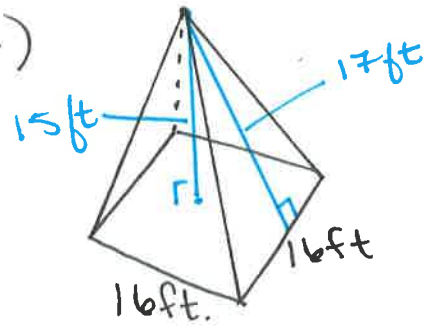
$S = 168\text{cm}^2$

$V = Bh$

$V = 24\text{cm}^2(5\text{cm})$

$V = 120\text{cm}^3$

22.)




square pyramid

$S = \frac{1}{2}Pl + B$

$P = 4s$

$s = 16\text{ ft}$

$P = 4 \cdot 16\text{ ft}$

$P = 64\text{ ft}$

$l = 17\text{ ft}$

$B = s^2$

$B = 16^2$

$B = 256\text{ ft}^2$

$S = \frac{1}{2}(64)(17) + 256$

$S = 544 + 256$

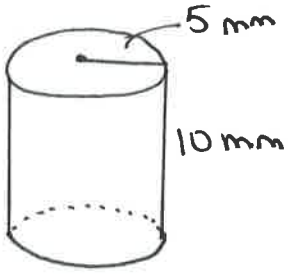
$S = 800\text{ ft}^2$

$V = \frac{1}{3}Bh \quad h = 15\text{ ft}$

$V = \frac{1}{3}(256)(15)$

$V = 1280\text{ ft}^3$

23.)




cylinder

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

$r = 5\text{ mm} \quad h = 10\text{ mm}$

$S = 2\pi(5)(10) + 2\pi(5)^2$

$S = 100\pi + 50\pi$

$S = 150\pi\text{ mm}^2$

$S \approx 471.2\text{ mm}^2$

$V = \pi r^2 h$

$V = \pi(5)^2(10)$

$V = \pi(25)(10)$

$V = 250\pi$

$V \approx 785.4\text{ mm}^3$