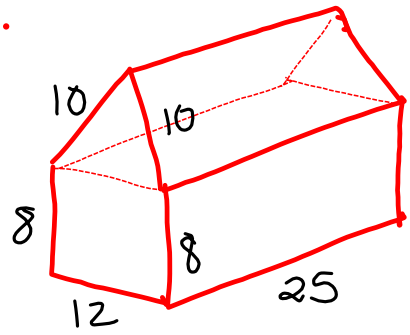
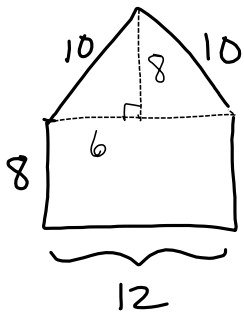
4.





$A_b = 8(12) + 6 \cdot 8$

$= 144$

$P_b = 10+10+8+8+12$

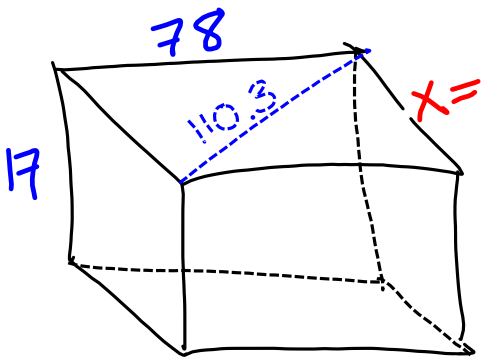
$= 48$

$A_l = P_b h = 48(25)$

$= 1200$

$A_s = A_l + 2A_b$

$= 1200 + 2(144) = \boxed{1488\ ft^2}$

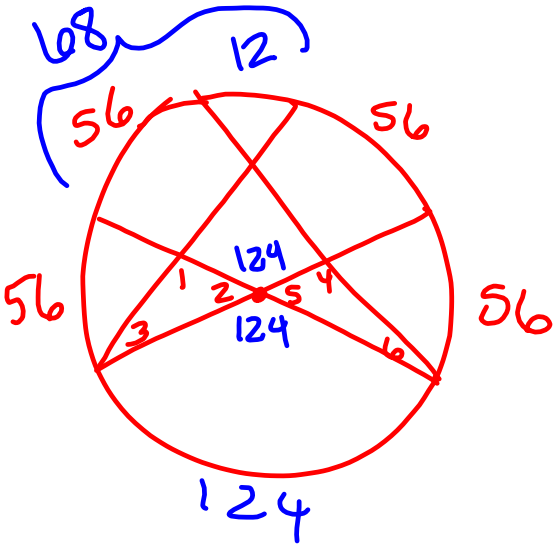


$x = \sqrt{110.3^2 - 78^2} \approx 78$

$V_{pool} = 17 \cdot 78 \cdot x \approx 103411.8\ ft^3$

$103411.8\ ft^3 \cdot \frac{7.5\ gal}{1\ ft^3}$

$\approx \boxed{775588.2\ gal}$

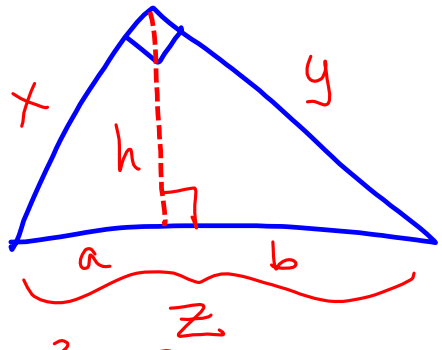


$\angle 2 = \angle 5 = 56^\circ$

$\angle 3 = \angle 6 = \frac{1}{2}(56) = 28^\circ$

$\angle 1 = \angle 4 = \frac{1}{2}(68 + 124)$

$= 96^\circ$



$x^2 + y^2 = z^2$

$a^2 + h^2 = x^2$

$b^2 + h^2 = y^2$

h is geometric mean betw a & b

$\frac{a}{h} = \frac{h}{b}$

each leg (x, y) is geometric mean betw hypotenuse (z) & its projection onto hypotenuse

$\frac{a}{x} = \frac{x}{z}$ $\frac{b}{y} = \frac{y}{z}$