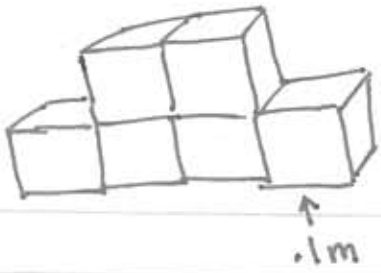
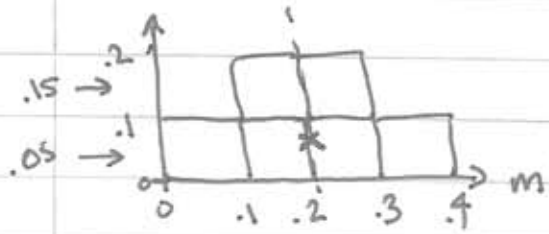
4.



$\rho = 600 kg/m^3$



$x_{CM} = \underline{.2m}$ by symmetry

$$y_{CM} = \frac{4(.05) + 2(.15)}{6} = \frac{.5}{6} = \underline{.0833 m}$$

Buoy

weight

$B - W = 0$

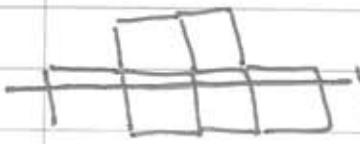
$B = W$

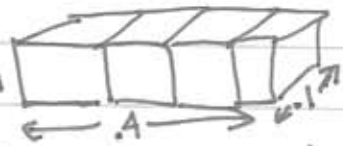
$\rho_{H_2O} V_{submerged}\, g = \rho_{wood} V_{whole}\, g$

$(1000) V_{submerged} = (600)(6 \times .1^3)$

↑ volume of cube

$V_{submerged} = .0036 m^3 = 3.6 cubes$





$(.4)(.1)h = .0036 \quad h = \underline{.09 m}$ 9cm under water