Class 1 Ch 12 7, 17, 27

(7) $V = lA = l(d_o^2 - d_i^2)\frac{\pi}{4} = 1.5\left((.035)^2 - (.025)^2\right)\frac{\pi}{4} = 7.07 \times 10^{-4}\ m^3$

$m = \rho V = 8.9 \times 10^3 (\quad) = 6.29\ kg$ (copper)

$W = mg = (\quad)9.8 = 61.7\ N$

(17) $P - P_0 = \rho g h = 1000 \cdot 9.8 \cdot 6.1 = 5.98 \times 10^4\ Pa$

$\frac{kg}{m^3}\ \frac{m}{s^2}\ m = \frac{kg\ m/s^2}{m^2} = \frac{N}{m} = Pa$

(27) Buoyant Force = weight of displaced sea water $= A h \rho g$

= Supported weight $= M_{total}\, g$

$A\rho\,\Delta h = \Delta M$

$\Delta h = \frac{\Delta M}{A\rho} = \frac{80}{\frac{\pi}{4}(.9)^2 \cdot 1030} = .122\ m$ (1030: sea water)

$\frac{kg}{m^2\ \ kg/m^3} = m$