P #A

Ch 9 Worksheet

$\rho = 1024\ kg/m^3$

$P_0 = 101.3\ kPa = 101,300\ Pa$

$h = 3000 ft \cdot \frac{1\ m}{3.281\ ft} = 914.4\ m$

a) $P = P_0 + \rho \cdot g \cdot h$

$= (101,300\ Pa) + (1024\ kg/m^3)(9.8\ m/s^2)(914.4\ m)$

$\boxed{P = 9.28 \times 10^6\ Pa}$

b) $P = 9.28 \times 10^6\ Pa$

$A = 4.68\ m^2$

$P = \frac{F}{A}$

$(9.28 \times 10^6\ Pa) = \frac{F}{4.68\ m^2}$

$\boxed{F = 4.34 \times 10^7\ N}$