

MYO 1.17

$$\begin{aligned} \text{Cloud} & \quad V \quad 1 \text{ km}^3 \\ & \quad \rho \quad 0.2 \text{ g/m}^3 \end{aligned}$$

(a) $V > \text{m}^3$

$$\begin{aligned} 1 \text{ m} & \quad 6.24 \times 10^4 \text{ miles} \\ 1 \text{ km} & = 0.6214 \text{ miles} \end{aligned}$$

$$(1 \text{ km})^3 \quad (0.6214 \text{ m})^3 \quad 0.24 \text{ m}^3$$

(b) Weight of water in the cloud? (in pounds)

First compute W in Newtons

$$\rho \quad 0.2 \text{ g/m}^3 \quad 2 \times 10^{-3} \text{ kg/m}^3$$

$$\text{mass } \rho V \quad (0.2 \times 10^{-3} \text{ kg/m}) (1000 \text{ m})^3$$

$$m \quad 200000 \text{ kg}$$

$$W = \frac{mg}{g_c} = 1.962 \times 10^6 \text{ N}$$

$$1 \text{ N} = 0.2248 \text{ lb}$$

$$W = 441057 \text{ lb}$$