

16. Letting  $p_a = p_b$ , we find  $\rho_c g(6.0 \text{ km} + 32 \text{ km} + D) + \rho_m(y - D) = \rho_c g(32 \text{ km}) + \rho_m(y)$  and obtain

$$D = \frac{(6.0 \text{ km})\rho_c}{\rho_m - \rho_c} = \frac{(6.0 \text{ km}) \left( 2.9 \text{ g/cm}^3 \right)}{3.3 \text{ g/cm}^3 - 2.9 \text{ g/cm}^3} = 44 \text{ km} .$$