

1. Blood pressure units conversion

$$P = 120 \text{ mmHg} \frac{0.1333 \text{ kPa}}{\text{mmHg}}$$

$$= \underline{16.0 \text{ kPa}}$$

7 pts

In general,

$$\Delta P = \rho g \Delta z$$

So,

$$\rho_{\text{Hg}} g \Delta z_{\text{Hg}} = \rho_{\text{H}_2\text{O}} g \Delta z_{\text{H}_2\text{O}}$$

Or,

$$\Delta z_{\text{H}_2\text{O}} = \frac{\rho_{\text{Hg}}}{\rho_{\text{H}_2\text{O}}} \Delta z_{\text{Hg}} = \left(\frac{13,534 \text{ kg/m}^3}{1,000 \text{ kg/m}^3} \right) 120 \text{ mmHg}$$

$$= 1,624 \text{ mm H}_2\text{O} \frac{1 \text{ in}}{25.4 \text{ mm}}$$

$$= \underline{63.9 \text{ in H}_2\text{O}} \quad 8 \text{ pts}$$

Accepted 64.2 in H₂O from EES and official conversion factors.

Giving answer in m of H₂O (1.62) - 2