

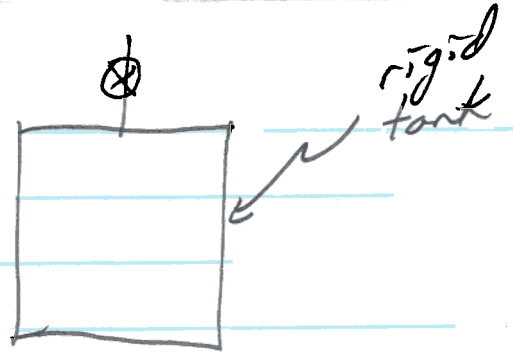
MYO 1.37

state 1

state 2

$$P_1 = 90 \text{ psia}$$
$$T_1 = 60^\circ\text{F}$$

$$P_2 = ?$$
$$T_2 = 110^\circ\text{F}$$



Fluid is Air $\Rightarrow R_{\text{air}} = 1716 \frac{\text{ft}\cdot\text{lb}}{\text{slug}\cdot^\circ\text{R}}$

Assume : Ideal Gas

$$D_1 = 12960 \text{ psfa}$$
$$T_1 = 519^\circ\text{R}$$

$$P_2 = ?$$
$$T_2 = 569^\circ\text{R}$$

$$pV = mRT$$

note m and V are constant

$$\frac{V}{m} = \frac{RT}{P} = \text{constant}$$

$$\frac{RT_1}{P_1} = \frac{RT_2}{P_2}$$

$$\frac{519^\circ\text{R}}{12960 \text{ psfa}} = \frac{569^\circ\text{R}}{P_2}$$

$$P_2 = 14218 \text{ psfa} = 98.7 \text{ psia}$$

Pressure increases by 8.7 psi