3.43 $T := 753.15 \cdot K$ $\quad T_c := 513.9 \cdot K$ $\quad T_r := \frac{T}{T_c}$ $\quad T_r = 1.466$

$P := 6000 \cdot kPa$ $\quad P_c := 61.48 \cdot bar$ $\quad P_r := \frac{P}{P_c}$ $\quad P_r = 0.976$

$\omega := 0.645$

$$B_0 := 0.083 - \frac{0.422}{T_r^{1.6}} \qquad B_0 = -0.146$$

$$B_1 := 0.139 - \frac{0.172}{T_r^{4.2}} \qquad B_1 = 0.104$$

$$V := \frac{R \cdot T}{P} + (B_0 + \omega \cdot B_1) \cdot R \cdot \frac{T_c}{P_c} \qquad V = 989 \frac{cm^3}{mol}$$ **Ans.**

For an ideal gas: $$V := \frac{R \cdot T}{P} \qquad V = 1044 \frac{cm^3}{mol}$$

First check that Tr and Pr are within the acceptable region on Figure 3.14.
The values of Tc and Pc and the acentric factor come from Appendix B Table B-1
Be sure to be clear that V = ZRT/P and that Z = Z0 + wZ1 per equns 3.57 and 3.64 in text (see pgs 101 and 102).