

$$\frac{dP}{dt} = 0.09, \frac{dT}{dt} = 0.29, V = 8.31 \frac{T}{P} \text{ and}$$
$$\frac{dV}{dt} = \frac{8.31}{P} \frac{dT}{dt} - 8.31 \frac{T}{P^2} \frac{dP}{dt}. \text{ Thus when } P = 12 \text{ and } T = 266,$$
$$\frac{dV}{dt} = 8.31 \left[\frac{0.29}{12} - \frac{(0.09)(266)}{144} \right] \approx -1.18 \text{ L/ s.}$$