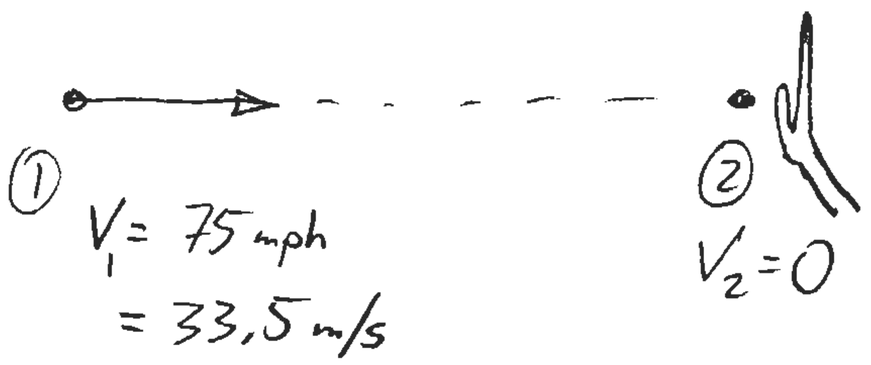
Adiabatic (no heat) + Reversible process (frictionless) → Isentropic



$$h_2 = h_{o_2} = h_{o_1} = c_p T_1 + \frac{1}{2} V_1^2 = 1004\ J/kg°K \cdot 300K^\circ + \frac{1}{2} 33.5^2\ m^2/s^2$$

$$h_2 = 301761.1\ J/kg$$

$$T_2 = h_2/c_p = 300.56\ K^\circ$$

$$\Delta T = 0.56\ K^\circ$$

$$p_2 = p_{o_2} = p_{o_1} = p_1 \left[1 - \frac{V_1^2}{2h_{o_1}}\right]^{-3.5} = p_1 \cdot 1.00654$$

$$p_2 = 1.00654 \times 10^5\ Pa$$

$$\Delta p = 654\ Pa \approx \frac{1}{2}\rho V^2 \text{ (low speed)}$$

OK to use Bernoulli here

$$\rho_2 = \rho_{o_2} = \rho_{o_1} = \rho_1 \left[1 - \frac{V_1^2}{2h_{o_1}}\right]^{-2.5} = \rho_1 \cdot 1.00466$$

$$\rho_2 = 1.2056\ kg/m^2$$

Note: Data as given doesn't exactly satisfy state equation. Some numerical differences will occur if the state equation is used instead of one of the adiabatic or isentropic relations.