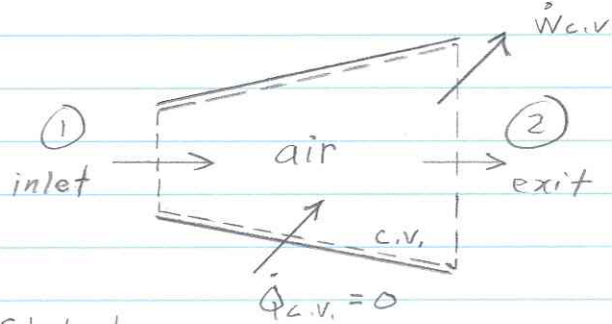
Example: Problem 6.28, Diffuser

- purpose: to decrease velocity of flow and increase the pressure



Assumptions:

1. Steady-state, steady flow
2. $\dot{W}_{c.v.} = 0$
3. $\dot{Q}_{c.v.} = 0$
4. $\Delta PE = 0$
5. Ideal gas – air
6. Constant specific heats.

State 1

$P_1 = 100\ kPa$

$T_1 = 300\ K$

$\bar{V}_1 = 200\ m/s$

$A_1 = 100\ mm^2$

State 2

$\bar{V}_2 = 20\ m/s$

$A_2 = 860\ mm^2$