① $Re_1 = \frac{V_1 L}{\nu} \sim 10^8$ TURBULENT +5

$Re_2 = \frac{V_2 L}{\nu} \sim 2 \cdot 10^8$ TURBULENT +5

OR +10

$\frac{P_2}{P_1} = \frac{C_{D_2}}{C_{D_1}} \frac{V_2^3}{V_1^3} = \frac{Re_1^{1/7}}{Re_2^{1/7}} \left(\frac{V_2}{V_1}\right)^3 = \left(\frac{V_1}{V_2}\right)^{1/7} \left(\frac{V_2}{V_1}\right)^3 =$

$= \frac{2^3}{2^{1/7}} = 2^{20/7}$

~~CONST~~

$P_1 = F_1 V_1 = \frac{1}{2} \rho A V_1^3 C_D$ +5

$P_2 = F_2 V_2 = \frac{1}{2} \rho A V_2^3 C_D$ +5

+2.5 +2.5

② $U = V = 0$ AT $y = 0$ +10

$U = 1$ AT $y = 1$ +5

OR ⇒ $f = f' = 0$ AT $\eta = 0$ +5 +5 +5

$f' = 1$ AT $\eta = \infty$ +5

+25 EVERYTHING

+15 IF ONLY u AND v OR f AND f'

③ 

$q \checkmark$

$\rho_s \frac{\pi D^3}{6} \frac{dV}{dt} = \frac{\pi D^3}{6} \cdot g (\rho_s - \rho) - \frac{1}{2} \rho \frac{\pi D^4}{4} C_D \cdot V^2$

+5 +5 +10

④ SEPARATION OCCURS IN THE DIVERGING PART SINCE $\frac{dU}{dx} < 0$ AND $\frac{dP}{dx} > 0$ THERE

+5

OR CURVATURE ARGUMENT

+20 IF ONLY THIS