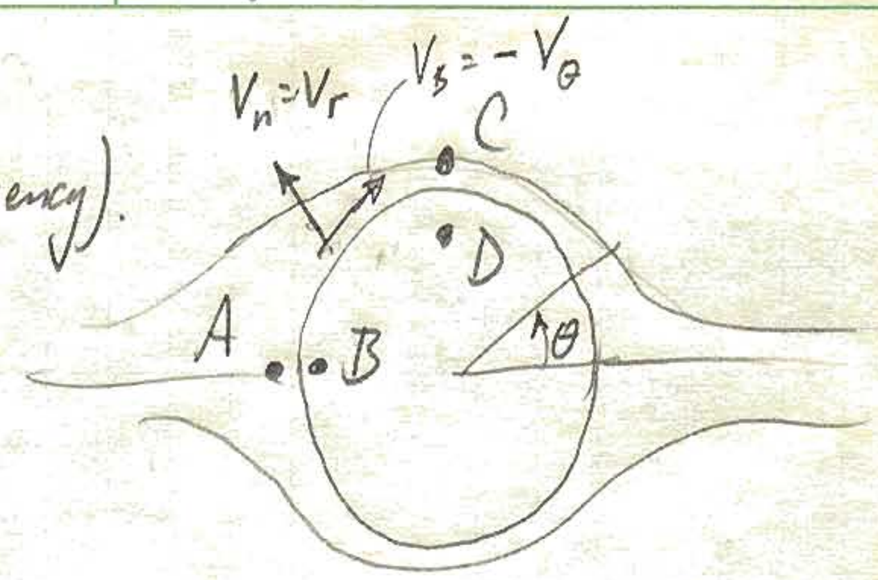
On all points on cylinder $V_n = 0$ (flow tangency).

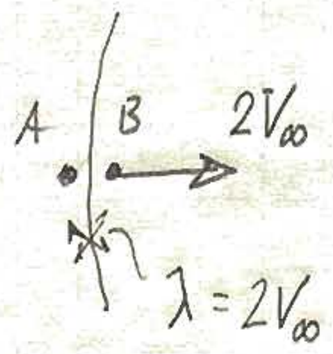


a) At point A: $\lambda = -2V_\infty \cos(180°) = 2V_\infty$

$\Delta V_n = V_{n_B} - V_{n_A}^{\,0} = \lambda$

or $V_{n_B} = \lambda = 2V_\infty$

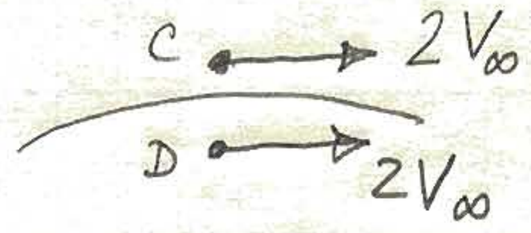
$V_{s_B} = 0$ by symmetry (no vertical velocity)



b) At point C: $\lambda = -2V_\infty \cos(90°) = 0$

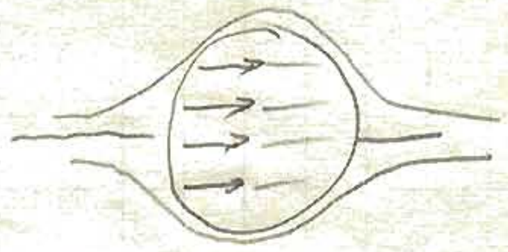
$\Delta V_n = V_{n_D} - V_{n_C}^{\,0} = 0 \Rightarrow V_{n_D} = 0$

Also $\Delta V_s = V_{s_D} - V_{s_C} = \gamma = 0 \Rightarrow V_{s_D} = V_{s_C} = 2V_\infty \quad (= -V_\theta)$

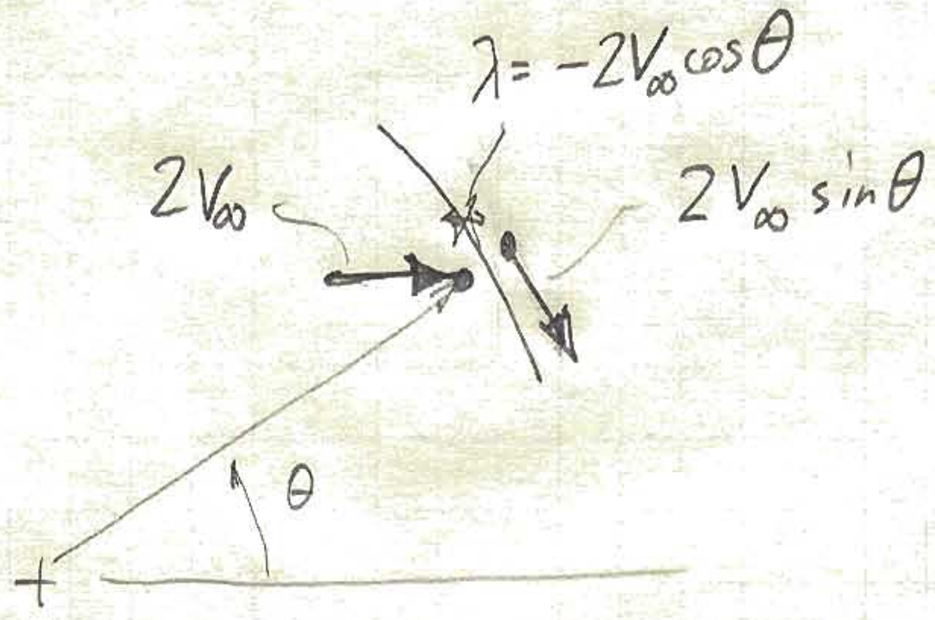


c) Velocities at both B and D are $2V_\infty$ in x-direction.

Interior velocity appears to be equal to $2V_\infty$ everywhere.



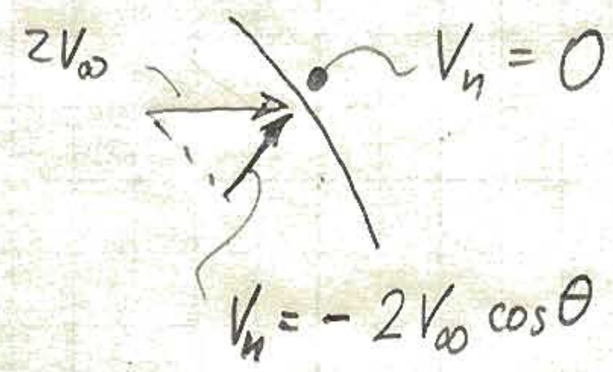
d) Examine some other general θ location:



Look at normal components

Check: $V_{n_{inside}} - V_{n_{outside}} \overset{?}{=} \lambda$

$-2V_\infty \cos\theta - 0 \overset{\checkmark}{=} -2V_\infty \cos\theta$



Source sheet model is consistent with flow about cylinder

Interior flow is $2V_\infty$ in x direction