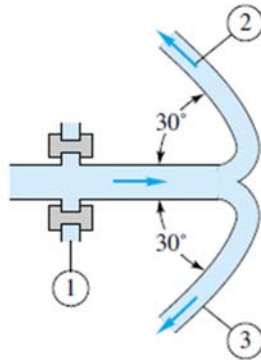


CE371 HOMEWORK-6 (DUE ON 18.12.2019)

Q1) Water at 20°C exits to the standard sea-level atmosphere through the split nozzle in figure. Duct areas are $A_1=0.02 \text{ m}^2$ and $A_2=A_3=0.008 \text{ m}^2$. If $p_1=135 \text{ kPa}$ (absolute) and the flow rate is $Q_2=Q_3=275 \text{ m}^3/\text{h}$, compute the force on the flange bolts at section 1.



Q2) Water flows steadily with negligible viscous effects through the pipe shown in figure. It is known that the 10 cm diameter section of thin-walled tubing will collapse if the pressure within it becomes less than 69 kPa below atmospheric pressure. **A)** Determine the maximum value that h can have without causing collapse of the tubing. **B)** Draw the energy line and hydraulic grade line for the flow shown in the figure.

