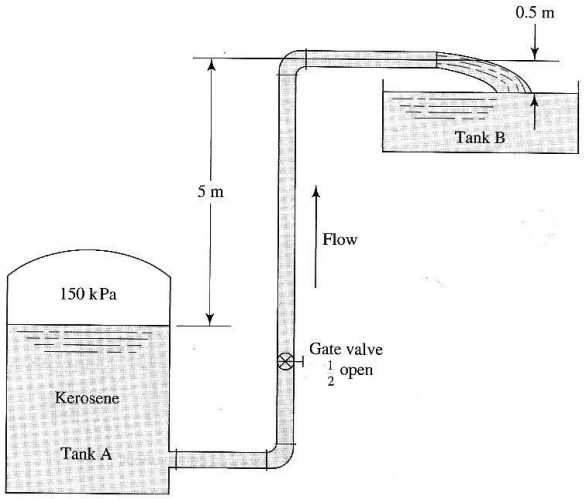
meng 263 – Fluids and Heat Transfer

class II - series pipe lines

Question 1

Kerosene at 25°C is flowing in the system shown in the figure.
Calculate the volume flowrate flowing into tank B.

- The pressure in the top of tank A is 150 kPa.
- The pipe is 2 in Type K copper tubing with a total length of 30 m.
- The two 90° bends have a radius of 300 mm.



Question 2

A device designed to allow cleaning of walls and windows on the second floor of homes is similar to the systems shown in the figure.
Determine the velocity of flow from the nozzle if the pressure at the bottom is:

a. 20 psig; and,
b. 80 psig.

- The nozzle has a loss coefficient K of 0.15 based on the outlet velocity.
- The tube is smooth drawn aluminium and has a inside diameter of 0.5 in.
- The 90° bend has a radius of 6 in.
- The total length of straight tube is 20 ft.
- The fluid is water at 100°F.