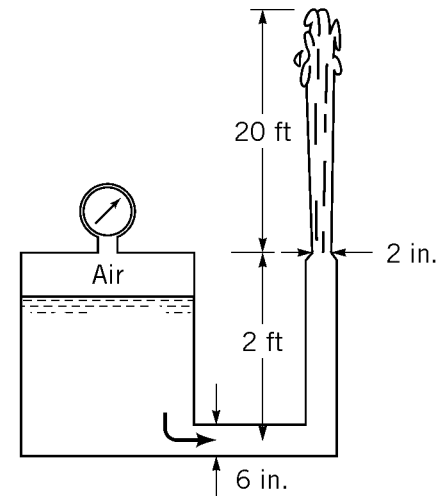


Homework - Chapter 3

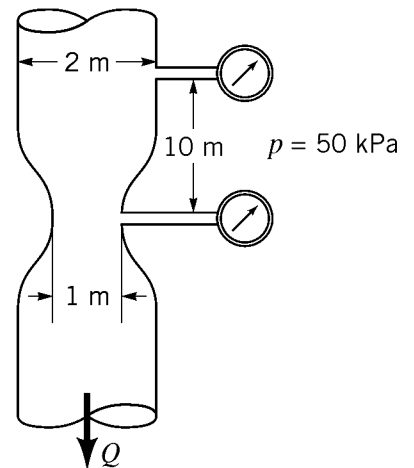
3.36 Water flows from a pressurized tank, through a 6-in.-diameter pipe, exits from a 2-in.-diameter nozzle, and rises 20 ft above the nozzle as shown in Fig. P3.36. Determine the pressure in the tank if the flow is steady, frictionless, and incompressible.



■ **Figure P3.36**

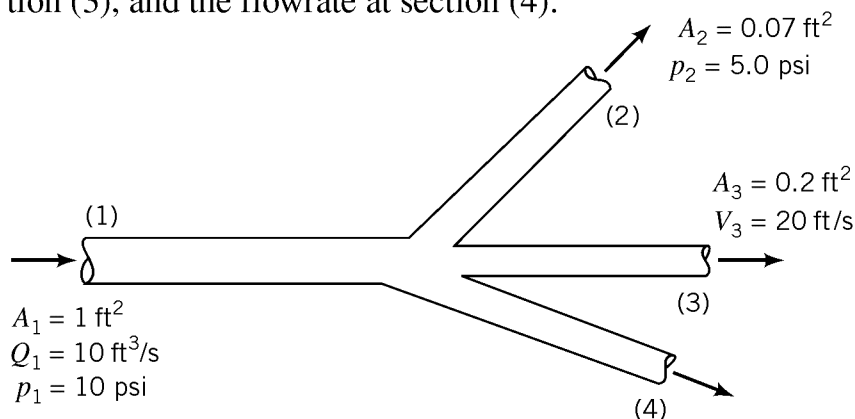
3.41 A fire hose nozzle has a diameter of $1\frac{1}{8}$ in. According to some fire codes, the nozzle must be capable of delivering at least 250 gal/min. If the nozzle is attached to a 3-in.-diameter hose, what pressure must be maintained just upstream of the nozzle to deliver this flowrate?

3.45 Water (assumed inviscid and incompressible) flows steadily in the vertical variable-area pipe shown in Fig. P3.45. Determine the flowrate if the pressure in each of the gages reads 50 kPa.



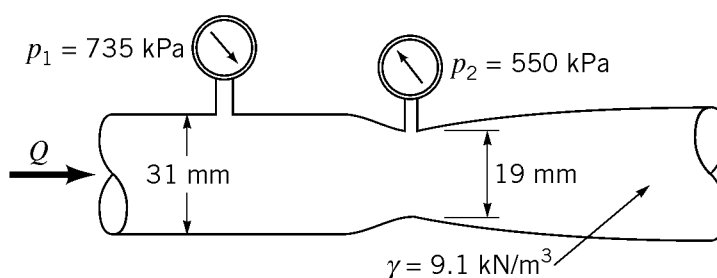
■ **Figure P3.45**

3.103 Water flows through the horizontal branching pipe shown in Fig. P3.103 at a rate of $10 \text{ ft}^3/\text{s}$. If viscous effects are negligible, determine the water speed at section (2), the pressure at section (3), and the flowrate at section (4).



■ **Figure P3.103**

3.116 Determine the flowrate through the Venturi meter shown in Fig. P3.116 if ideal conditions exist.



■ **Figure P3.116**