Homework - Chapter 8

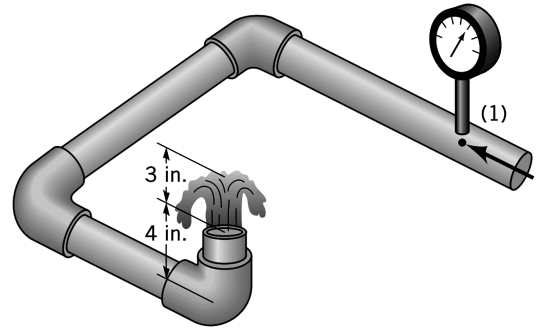**8.78** ▶ (WILEY GO) As shown in **Video V8.15** and Fig. P8.78, water "bubbles up" 3 in. above the exit of the vertical pipe attached to three horizontal pipe segments. The total length of the 0.75-in.-diameter galvanized iron pipe between point (1) and the exit is 21 in. Determine the pressure needed at point (1) to produce this flow.


■ Figure P8.78

8.84 (WILEY) Water flows through a 2-in.-diameter pipe with a velocity of 15 ft/s as shown in Fig. P8.84. The relative roughness of the pipe is 0.004, and the loss coefficient for the exit is 1.0. Determine the height, h, to which the water rises in the piezometer tube.
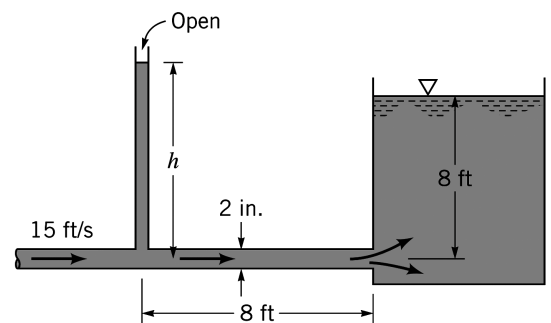
■ Figure P8.84

Water, at 10°C, flows from a large reservoir at the rate of 1.5×10^{-2} m³/s through the system shown. Calculate the pressure in the tube at point B.
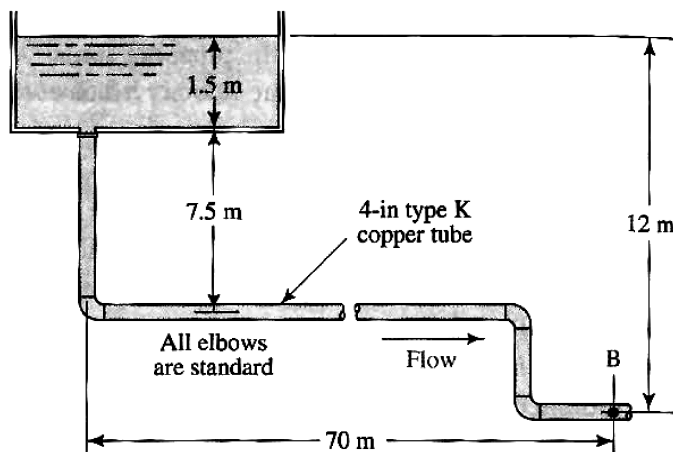
A lubricating oil must be delivered through the piping system shown in Fig. 11.7 with a maximum pressure drop of 60 kPa between points 1 and 2. The oil has a specific gravity of 0.88 and a dynamic viscosity of 9.5×10^{-3} Pa·s. Determine the maximum allowable volume flow rate of oil.

FIGURE 11.7