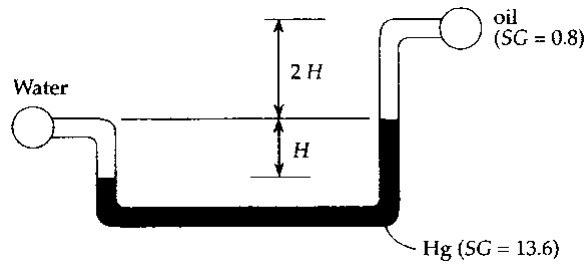


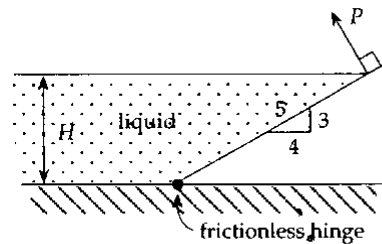
Reinforcement Quiz – FLD_015

- The viscosity of a gas increases with increased temperature because
 - internal stickiness of the gas decreases
 - internal molecular activity decreases
 - internal stickiness of the gas increases
 - internal molecular activity increases.



- Find the difference in pressure between the water and oil if $H = 25$ cm. See above sketch.
 - 42.3 kPa
 - 37.2 kPa
 - 34.8 kPa
 - 30.6 kPa

- Find an expression for the force P needed to hold the gate of width w in the position shown.
 - $5/18\gamma\omega H^2$
 - $1/6 \gamma\omega H^2$
 - $2/9 \gamma\omega H^2$
 - $1/2 \gamma\omega H^2$



4. Water flows in a pipe of diameter D with a velocity V . It enters at the center of two parallel disks of radius R separated by a distance t . The water flows radially outward between the disks. The velocity with which the water leaves the disks is
- (A) $\frac{D^2V}{4R^2}$
 - (B) $\frac{D^2V}{8Rt}$
 - (C) $\frac{DtV}{8R^2}$
 - (D) $\frac{DtV}{4R^2}$
5. Bernoulli's equation cannot be used to approximate the pressure drop for which of the following?
- (A) across an orifice through which water flows
 - (B) across a nozzle through which water flows
 - (C) from the free stream to the stagnation point on an airfoil of a small aircraft
 - (D) across a Venturi meter
6. The pressure drop over 15 m of 2-cm-diameter galvanized iron pipe is measured to be 60 kPa. If the pipe is horizontal, estimate the flow rate of water. ($\nu = 10^{-6} \text{ m}^2/\text{s}$)
- (A) 6.82 L/s
 - (B) 2.18 L/s
 - (C) 0.682 L/s
 - (D) 0.218 L/s
7. The pressure drop across a valve, through which $0.04 \text{ m}^3/\text{s}$ of water flows, is measured to be 100 kPa. Estimate the loss coefficient if the nominal diameter of the valve is 8 cm.
- (A) 0.32
 - (B) 0.79
 - (C) 3.2
 - (D) 8.7
8. What is the energy requirement of an 85% efficient pump that transports $0.04 \text{ m}^3/\text{s}$ of water if it increases the pressure from 200 kPa to 1200 kPa?
- (A) 4.8 kW
 - (B) 14.2 kW
 - (C) 34.0 kW
 - (D) 47.1 kW