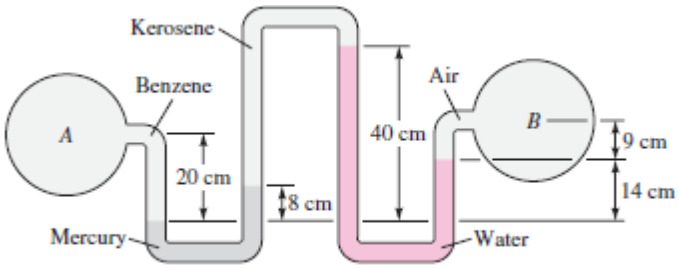
ESO204A: Fluid Mechanics and Rate Processes
TUTORIAL 1 PROBLEMS

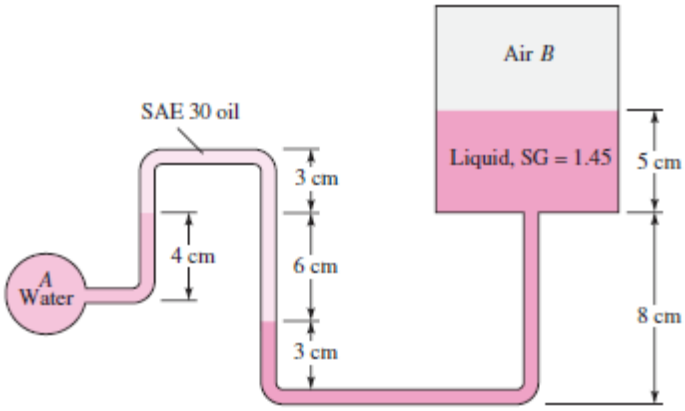
August-November 2017

1. In Fig. P2.31 all fluids are at 20°C. Determine the pressure difference (Pa) between points *A* and *B*.



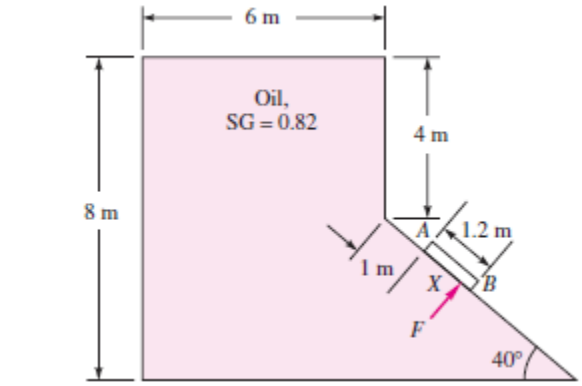
P2.31

2. In Fig. P2.33 the pressure at point *A* is 170 kPa. All fluids are at 20°C. What is the air pressure in the closed chamber *B*, in Pa?



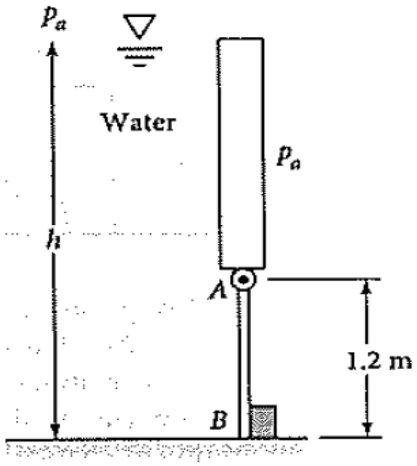
P2.33

3. Gate *AB* in Fig. P2.51 is 1.2 m long and 0.8 m into the paper. Neglecting atmospheric pressure, compute the force *F* on the gate and its center-of-pressure position *X*.



P2.51

4. Gate *AB* in Fig. P2.55 is 1.5 m wide into the paper, hinged at *A*, and restrained by a stop at *B*. The water is at 20°C. Compute (a) the force on stop *B* and (b) the reactions at *A* if the water depth $h = 3$ m.



P2.55