1. A plunger is moving through a cylinder at a speed of 20 ft/s, as shown in the figure. The film of oil separating the plunger from the cylinder has a viscosity of 0.020 lb-s/ft². What is the force required to maintain its motion?

![Diagram](Fig. For 1)

2. For the vertical pipe with manometer attached, as shown in the figure, find the pressure (gage pressure) in the oil at point A.

![Diagram](Fig. For 2)

3. Gate AB in the figure is 4 ft wide and hinged at A. Gage G reads -2.17 psi, while oil (s = 0.75) is in the right tank. What horizontal force must be applied at B for equilibrium of gate AB?

![Diagram](Fig. For 3)

4. What is the total weight of barge and load in the figure? The barge is 6 m in width.