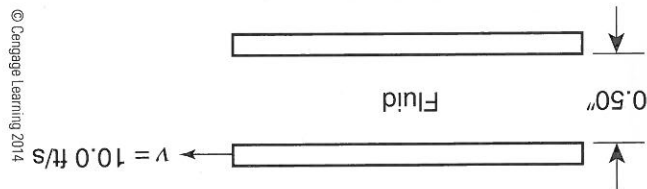


PROBLEMS

1. What is the weight of 1.0 cubic foot of water?
2. What is the density of water?
3. A can measuring 4.0 inches in diameter and 6.0 inches high is filled with a liquid. If the net weight is 2.0 pounds, what is the specific weight of the liquid?
4. A container measuring 10.0 cm by 20.0 cm by 15.0 cm is filled with a liquid. If the net weight is 450 N, what is the specific weight of the liquid?
5. What is the specific gravity of SAE 30 oil, which has a specific weight of 57.4 lb/ft³?
6. What is the specific gravity of kerosene, which has a specific weight of $7.85 \times 10^3 \text{ N/m}^3$?
7. Two capillary tubes are placed vertically in an open container of water. One tube has a diameter of 2.0 mm, and the other a diameter of 1.0 inch. In which tube will the water rise higher?
8. A sliding plate viscometer, as shown below, is used to measure the viscosity of a fluid. The plate area is 0.75 ft^2 . A force of $1.5 \times 10^{-4} \text{ lb}$ moves the upper plate at a velocity of 10.0 ft/s. What is the absolute viscosity?



9. A liquid has an absolute viscosity of $2.2 \times 10^{-5} \text{ lb-s/ft}^2$. It weighs 45 lb/ft³. What is its kinematic viscosity?
10. A liquid has an absolute viscosity of $2.4 \times 10^{-3} \text{ N-s/m}^2$. It weighs $7.85 \times 10^3 \text{ N/m}^3$. What is its kinematic viscosity?

FURTHER READING

- Brater, E. F., and King, H. (1996). *Handbook of Hydraulics* (7th ed.). New York: McGraw-Hill.
- Crowe, Clayton T., et al., (2008). *Engineering Fluid Mechanics* (9th ed.). New York: John Wiley & Sons.
- Douglas, J. F. (2000). *Fluid Mechanics*. Englewood Cliffs, NJ: Prentice Hall.
- Fox, Robert W., et al., (2008). *Introduction to Fluid Mechanics* (7th ed.). New York: John Wiley & Sons.
- Franzini, J. B., and Finnemore, E. J. (1997). *Fluid Mechanics with Engineering Applications* (9th ed.). New York: McGraw-Hill.
- Granger, Robert A. (1995). *Fluid Mechanics*. Mineola, NY: Dover Publications.
- Lindburg, M. R. (1995). *E.I.T. Review Manual*. Belmont, CA: Professional Publications.
- Massey, B. (2005). *Mechanics of Fluids*. Boca Raton, FL: CRC Press.
- Mott, R. L. (1994). *Applied Fluid Mechanics* (4th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Munson, B. R. (2005). *Fundamentals of Fluid Mechanics*. New York: John Wiley & Sons.