

Answers to selected questions

Chapter 9

- Q6** a. The larger piston experiences the greater force since $F = p \times A$.
b. The large-area piston moves a smaller distance than does the small-area piston. The work must be the same for each, so because of the greater force on the large-area piston, it will move a smaller distance.
- Q12** The level would decrease. The barometer is measuring the weight/area of air above it, so as we climb the mountain the pressure decreases.
- Q18** The pressure pushing on the bottom is greater than the pressure pushing on the top. The pressure in a liquid increases with increasing depth.
- Q24** It will be partly submerged. The object will sink until the weight of the displaced water is equal to the weight of the object. If the density of the water is greater than the object, it will float partially submerged.
- Q30** They come together. The higher air velocity between them means that the pressure will be reduced in that region, according to Bernoulli's Principle, and atmospheric pressure above and below pushes them together.