

## Answers to selected questions

### Chapter 9

**Q6.** a. The larger-area piston experiences the larger force because the force equals the pressure times the area.

b. The larger piston moves through a smaller distance than the smaller piston so that the work done is equal for the two pistons.

**Q12.** The balloon would contract as you descend the mountain because the external pressure of the air increases as you descend causing the volume of the gas inside the balloon to decrease.

**Q18.** Yes. If the concrete forms just the shell of the hull then the average density of the boat and its contents can be less than that of water and the boat will float.

**Q24.** The speed of the water will decrease in the wider section so that the total rate of flow remains constant.

**Q30.** It will cause the door to swing open because the greater air speed flowing past the outside of the door produces a decreased pressure according to Bernoulli's principle.