

Answers to selected questions

Chapter 3

- Q6** Because there is no air resistance in the evacuated tube, both the crumpled and the uncrumpled sheets of paper will reach the bottom of the tube at the same moment. (remember the Apollo 15 video)
- Q12** a. The thrown ball will reach the ground first. Both will have the same change in their velocity, since gravity is the only force changing their velocity, but because the thrown ball began with a non-zero downward velocity, it will have a larger final downward velocity.
b. No. The only acceleration is that due to gravity which is the same for both balls.
- Q18** No. Acceleration is in the downward direction throughout the motion.
- Q24** No. Horizontal velocity has no influence on the vertical motion.
- Q30** No. Even though its horizontal velocity component is greater than that of the other shot, it falls sooner to the ground.