CHAPTER 3

Create pictorial and physical models for the following problems. Do not solve the problems.

1. A sailboat moves at a constant speed of 2 m/s. How far does it travel every ten seconds?
2. The putter strikes a golf ball 3.2 m from the hole. After 1.8 s, the ball comes to rest 15 cm from the hole. Assuming constant acceleration, find the initial velocity of the ball.
3. How far above the floor would you need to drop a pencil to have it land in 1 s?
4. Two bikes 24 m apart are approaching each other at a constant speed. One bike is traveling at twice the speed of the other. If they pass each other in 4.3 s, how fast are they going?
5. A sprinter accelerates from 0.0 m/s to 5.4 m/s in 1.2 s, then continues at this constant speed until the end of the 100-m dash. What time did the sprinter achieve for the race?
6. Toss your keys straight up at 1 m/s. How long will they stay aloft before you catch them?

   v_o = 0 m/s

   a = –9.80 m/s^2

   t = ? s