Homework 3
DUE AT START OF CLASS ON TUE OCT 20

1. Use the ideas of inertia and Newton’s 1st and 2nd laws to explain why the offensive linemen are so much bigger than the running backs on a typical football team.

2. In rock climbing, why is it easier to climb a vertical “chimney” (a narrow opening with two facing vertical sides) than a single rock face that is less steep?

3. Explain why the track for indoor cycling events has banked turns but a running track do not.

4. Give an example of a sport where friction plays an important role, and a player generally seeks to increase the friction involved. Give another example of a sport where a player generally seeks to minimize the friction involved. Draw a diagram to illustrate the role of friction for each of your examples.

5. Referring to Table 5-4 in the textbook, explain why it is easier to hit a home run from a fast pitch than a slower pitch. Why do pitchers still throw fastballs if this is true?

6. Consider a ski jumper accelerating down the ramp before her take off. Draw a diagram showing the different forces on her body as vectors with labels. Add a vector showing the net force on her body.