Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Section:\_\_\_\_\_\_\_\_

Free Fall/Hangtime Honors Problems

1. A feather is dropped on the moon from a height of 1.40 meters. The acceleration of gravity on the moon is 1.67 m/s2. Determine the time for the feather to fall to the surface of the moon.
2. A ball is thrown off a building with an initial velocity of 18m/s and it takes the ball 8.9seconds to reach the ground.
   1. Determine the final velocity of the ball
   2. How far did the ball fall?
3. Some athletes have great jumping ability. When they leap straight up in the air they seem to momentarily hang in the air and defy gravity. The time that a jumper is airborne with feet off the ground is called hang time.
   1. Michael Jordan has the highest vertical jump recorded with a distance of 1.21meters, what is his hang time?
   2. Find your vertical jumping distance in meters. (stand against a wall and make a mark, jump and make another mark)
   3. Calculate your personal hang time.