How Far

Directions: Show the solutions (i.e. your work) to these on a separate sheet of paper.

1058 m — 1. What distance will a train stop in if its initial velocity is 23 m/s and its acceleration is -.25 m/s/s?

266 m — 2. What distance will a car cover accelerating from 12 m/s to 26 m/s in 14 seconds?

9.6 m/s
4.8 m/s
14.4 m — 3. A person starts at rest and accelerates at 3.2 m/s/s for 3.0 seconds. What is their final velocity? What is their average velocity? What distance do they cover in that time?

31.36 m/s
50.2 m — 4. Steve Apt's group claimed that they fell 3.2 seconds from a cliff into the water. What was their final speed? How high was the cliff?

49.1 m/s
432.6 m — 5. A car going 12.7 m/s accelerates for 14 seconds at 2.6 m/s/s. What is its final velocity? What distance does it go during that time?

1.43 s
14 m/s — 6. What time will it take you to hit the water off of a 10.0 m board? What speed will you be going when you hit the water?

31.5 m/s
2.67 s
-7.9 m/s/s — 7. A car slows from 42 m/s to 21 m/s over a distance of 84 m. What was the average velocity? What was the time? What was the acceleration?

6.85 m/s
8.2 s
1.68 m/s/s — 8. A car accelerates from rest down a hill reaching a final speed of 13.7 m/s over a distance of 56 m. What was the average speed? What was the time? What was the acceleration?

23.6 m/s — 9. A car skids to a halt in 34 m with an acceleration of 8.2 m/s/s. What was the initial velocity? (Hard algebra)

-.13 m/s/s — 10. What must be the acceleration of a train in order for it to stop from 12 m/s in a distance of 541 m? (find v average, then find time, then find acceleration)

How Far II

Directions: Show the solutions (i.e. your work) to these on a separate sheet of paper. Turn in this sheet with no marks on it when you are through with it. (Maybe wait until after the test?)

5.5 s 149 m 11 s	1. A baseball leaves the bat with an upward velocity of 54 m/s. What time does it take to reach the top? How high does it go? What total time will it be in the air?
2.4 s 29 m	2. A person jumps off of a cliff and hits the water below moving with a velocity of -24 m/s. What time were they in the air? How high is the cliff?
4.3 s 42 m/s	3. Cliff divers in South America jump from 300 foot cliffs into the water. (1 m = 3.281 f) What time does it take them to hit the water, and how fast are they going when they do hit the water?
4.0 m/s .84 m -14.6 m/s	4. Red Elk leaves the 10.0 m diving board with an upward velocity and hits the water 1.9 seconds later. What was his initial upward velocity? To what height above the diving board did he rise before going down? With what speed did he hit the water?
25 m/s	5. A car will skid to a halt at a rate of -9.4 m/s/s. If you measure skid marks that are 34 m long, with what speed was the car going that made them?
2083 m	6. A train can speed up at .15 m/s/s. In what minimum distance can it attain a speed of 25 m/s starting from rest?
11.7 m/s/s 309 m	7. A drag racer can reach a speed of 53 m/s over a distance of 120 m. What is its acceleration? Over what distance can it reach a speed of 85 m/s
681 m	8. A jetliner must reach a speed of 80 m/s to take off, and can accelerate at 4.7 m/s/s. What is the minimum length of runway?
-140 m/s	9. Theoretically, what would be the velocity of a steel marble dropped from an airplane 1000 m above the ground just as it hits the ground?
135,000 m/s/s	10. A rifle bullet leaves the muzzle of a .75 m long barrel going 450 m/s. What is the acceleration of the bullet while it is in the barrel?