**How Far II**

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

|  |  |
| --- | --- |
| 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? (Use 9.8 m/s/s as the acceleration) |
| 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 velocity did he hit the water? (Use -9.8 m/s/s as the acceleration) |
| 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? |