Kinematics

Name: _____

1. A race car accelerates at a rate of 15.6 m/s^2. If it starts from rest, how much time till it is traveling at 325 km/h?

2. A truck falls off a cliff. If the cliff is 33.5 m high, how much time for the truck to reach the bottom?

3. You toss a ball straight up in the air, it goes up, comes down, and you catch it. If it took 5.6 s from when you threw it to when you caught it, how high did it go?

4. The speed of sound is 344 m/s. You have built a really fantastic car that can really go fast. If the car can accelerate at 22.4 m/s^2, how much time till you reach the speed of sound? How many kilometers will you travel before you reach that speed?

5. In 1947 Bob Feller, a pitcher for the Cleveland Indians, threw a baseball across the plate at 98.6 mph or 44.1 m/s. For many years this was the fastest pitch ever measured. If Bob had thrown the pitch straight up, how high would it have gone?

6. You are on top of a building that is 75.0 m tall. You toss a ball straight up with an initial velocity of 33.8 m/s. How high does the ball travel? It goes up and then falls down to the ground below. How much time is it in the air?