Practice Quiz: Free Fall

**CONCEPTUAL PHYSICS: UNIT 1**

**DIRECTIONS:** Use the equations below to solve the following problems. You must show all of your work to receive credit. This includes: 1) showing what is given, what you are trying solve for (2 points) 2) showing equation (2 points) 2) showing your work (2 points) 3) answer with correct units (2 points). A total of 8 points/question. **Total points = 40 points**

\[ v = \frac{d}{t} \quad v = v_0 + gt \quad d = \frac{1}{2} gt^2 \quad t = \sqrt{\frac{2d}{g}} \]

1. You drop a rock off the top of a building. It takes 6.0 s to hit the ground. How tall is the building?

2. You drop a rock off the top of a 100 m tall building. Assuming there is no air resistance, how long does it take to hit the ground?
3. You throw a rock off the top of a building with an initial velocity of 3.0 m/s. It hits the ground going 23 m/s. How long did it take to impact on the ground?

4. You throw a rock up into the air as hard as you can. It stays in the air a total of 6.0 s. What was the velocity of the rock when you threw it?

5. You toss a ball at 4.0 m/s straight upward. How much time will the ball take to reach the top of its path?