Free Fall

Read **Sections a**, **b** and **d** from **Lesson 5** of the **1-D Kinematics** chapter at **The Physics Classroom**:

http://www.physicsclassroom.com/Class/1DKin/U1L5a.html

MOP Connection: None

1. A rock is dropped from a rest position at the top of a cliff and free falls to the valley below. Assuming negligible air resistance, use kinematic equations to determine the distance fallen and the instantaneous speeds after each second. Indicate these values on the odometer (distance fallen) and the speedometer views shown to the right of the cliff.

   Show a sample calculation below:

2. At which of the listed times is the acceleration the greatest? Explain your answer.

3. At which of the listed times is the speed the greatest? Explain your answer.

4. If the falling time of a free-falling object is doubled, the distance fallen increases by a factor of _____. Identify two times and use the distance fallen values to support your answer.