Free Falling Bodies

As you work through the steps in the lab procedure, record your experimental values and the results on this worksheet. Use the exact values you record for your data to make later calculations.

Part I: Data

Calculate the distance traveled and enter your results in Table 1.

Table 1

Distance Fallen (m)	Time (s)	Calculated Distance (m)
0	0	0
5		
10		
30		
50		
65		
85		
100		

Complete Table 2. Describe each graph generated by the simulation.

Table 2

Fallen (m)	Describe		
	Distance Curve	**Velocity Curve**	**Acceleration Curve**
0			
5			
10			
30			
50			
65			
85			
100			

Part II: Questions

Consider the following questions and a student's response to each question (shown in italics). In each case, determine if the student's answer is true or false.

Explain the reasons that the distance curve has the shape it does.

The distance curve is an increasing curved line because the object is accelerating.

The velocity curve is an increasing straight line. What does this mean?

The velocity curve is a straight line because the object is moving with constant speed.

Calculate the slope of the velocity curve. Do you recognize what this is?

The slope of the velocity curve is the acceleration of the object and I calculated a slope of about 4.9 m/s².

The acceleration curve is a horizontal straight line. What does this mean?

The acceleration curve is a horizontal line because the acceleration of the object does not change with time.