

Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Sample Quiz: Introductory Physics, Freefall Laboratory

You have fifteen (15) minutes to complete this quiz. Calculators may be used if necessary, along with your class notes.

This sample quiz was created using several things possible with ExploreLearning Gizmos:

- Screen snapshot features.
- Data export features.
- Modification of Exploration Guides and Assessment Questions for classroom use.
- This quiz assumes the students have already gone through the Exploration Guide.

Pencils ready? Begin!

**Question 1.** What is Newton's Second Law?

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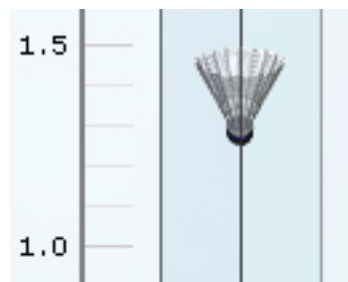
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**Question 2.** An object is shown in the picture to the right. It is falling downward through the air. Sketch the forces acting on the object (create a force diagram).



**Question 3.** If the object shown to the right had bounced off the ground and was moving upward, would the force diagram drawn would be correct for this situation also.

- True  
 False

In a recent experiment, the position, velocity, and acceleration of a falling object was recorded. Use this data to answer the next two questions.

Time (sec)	Position (m)	Velocity (m/s)	Acceleration (m/s/s)
0.00	2.000	0.000	-9.800
0.05	1.989	-0.391	-6.117
0.10	1.963	-0.635	-3.819
0.15	1.928	-0.787	-2.384
0.20	1.886	-0.882	-1.488

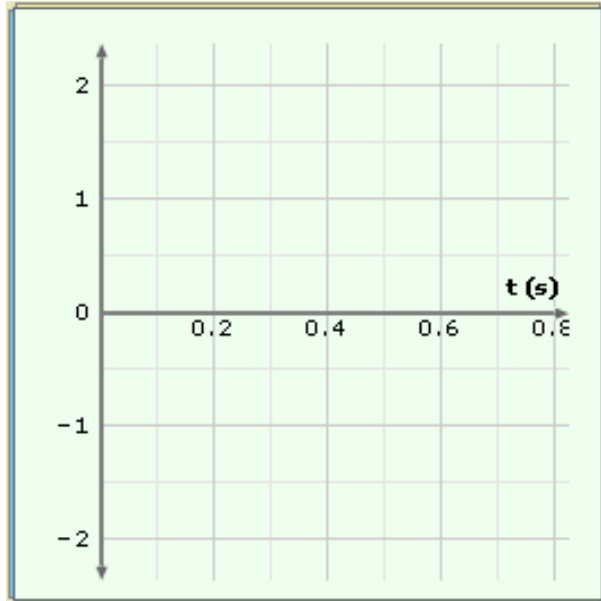
Name: \_\_\_\_\_

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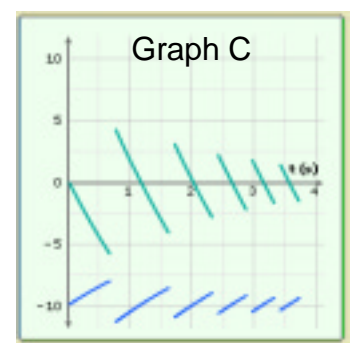
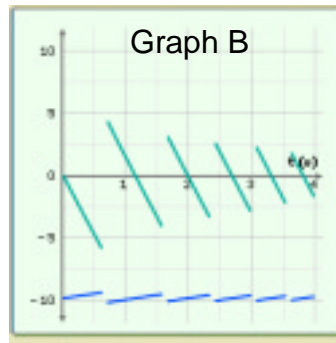
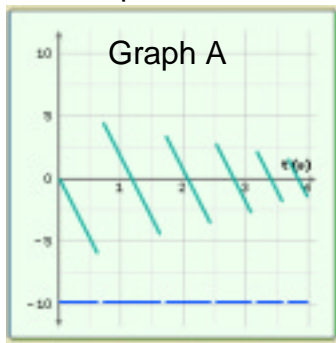
**Question 4.** A 100 gram object was used when recording the data in the table above. What was the **drag** force acting on the object after it had been falling for 0.2 seconds?

- a) 0.00 N
- b) 0.83 N
- c) 0.98 N
- d) 9.80 N

**Question 5.** Using the data in the table, make a sketch of the Velocity vs. Time for the object.



**Question 6.** An object is dropped from a height of two meters through three different environments: the Earth, the moon, and a new planet. The object bounces on the ground several times. Your equipment could only measure the velocity and acceleration of the object? Which graph is most likely to represent an experiment that was performed on the surface of the moon?



- a) Graph A
- b) Graph B
- c) Graph C
- d) None of the above.