

Questions Related to Acceleration of Gravity

- 1. The term "kinematics" comes from the Greek language. How would this term be expressed in English?**
 - the study of how a film reel is turned at the cinema
 - the study of the motion of points and bodies in space
 - the study of everything outside of mathematics
- 2. What does the term "freefall" refer to?**
 - fruit that has fallen off a tree and does not need to be paid for
 - a theft that has gone unnoticed thus far
 - the motion of an object where gravity is the only external force acting on it
- 3. What equations are relevant to the analysis of freefall?**
 - time-distance equation
 - rate-time equation
 - acceleration-time law
- 4. What is the name of the unit in which acceleration is measured?**
 - m/s^2
 - joule
 - newton
 - m/s
- 5. What is the freefall acceleration on Earth (standard acceleration) expressed in the unit referred to in question 4?**
 - 9.81
 - 1.89
 - 8.91
 - 3.33
- 6. The hippopotamus falls at exactly the same rate as an earthworm in a vacuum!**
 - This statement is not true.
 - This statement does not hold true on the moon.
 - This statement is correct, because freefall acceleration is independent of mass.
 - The statement is true. Although the hippopotamus is more strongly attracted, it is also heavier, meaning that more mass needs to be moved.
- 7. Is the accuracy of our measured result impacted adversely or positively by doubling the drop height in our experiment, or does it not matter?**

It is impacted

 - positively
 - does not matter
 - adversely

Explanation: The longer the falling distance and fall time, the more accurately the measured results can be calculated. Any timing errors will be a smaller percentage of the total measured time for bigger drop heights.



8. What did Felix Baumgartner achieve on October 14, 2012?

- supersonic speed
- a jump from a height of 36.5 km
- 5.2 seconds of zero gravity

9. Where can knowledge about freefall come in handy?

- in aviation and aerospace, to simulate zero-gravity conditions in parabolic flights
- in the design of new cars (reducing aerodynamic resistance), to economize on fuel
- in the design of ski jumps and ski-jump landing strips