

# NEXT-TIME QUESTION



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- a) First law of motion
- b) Second law of motion
- c) Third law of motion
- d) Law of universal gravitation

How does the law explain the fact that freely falling objects undergo the same gain in speed per second, regardless of mass?



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CONCEPTUAL Physics



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Answer:

Newton's second law of motion, namely  $a = \frac{F}{m}$ , nicely connects the concepts of *acceleration*, *force*, and the measure of inertia, *mass*. Note that free-fall acceleration is independent of mass.

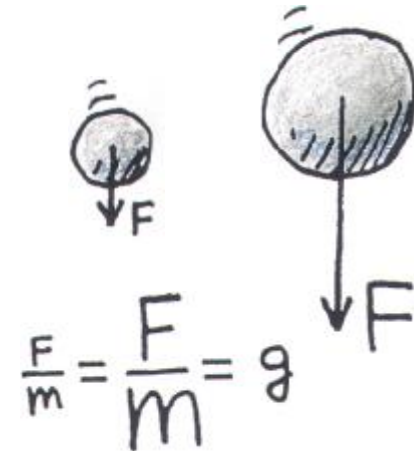
Einstein called Galileo the father of modern physics and modern science.



When Galileo tried to explain why all objects fall with equal accelerations, wouldn't he have loved to know the rule:

$$a = \frac{F}{m}$$

Or,  $\frac{mg}{m} = g$  regardless of mass.



Hewitt  
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