

Review Exercises

1. A freely falling body is found to be moving upwards at 15 m/s at one instant. What will be its velocity after 3 seconds? (Ans. 15 m/s downward)
2. Which one of the following statements is NOT true of a free-falling object? An object in a state of free fall
 - a. Falls with a constant speed.
 - b. Falls with an acceleration.
 - c. Falls only under the effect of gravity
 - d. Falls with downward acceleration which has a constant magnitude.
3. The speed of a freely-falling object would increase each second by: (ans. 10 m/s²).
4. a) What is the velocity of a freely-falling object after falling 7.5 seconds starting from rest? (ans. 75 m/s downward)
4. b) What is the velocity of a freely-falling object after falling 7.5 seconds starting with an initial speed of 20 m/s? (ans. 95 m/s downward)
5. If you drop an object, it will accelerate downward at a rate of 10 m/s². What is its acceleration if you instead throw it downwards with an initial speed of 35 m/s? (in the absence of air resistance).
6. When an object is thrown upward, how much speed does it lose each second?
7. For a freely falling object dropped from rest, what is the acceleration at the end of the 5th second? The 10th second?
8. Two children are bouncing small rubber balls. One child simply drops a ball. At the same time, the second child throws a ball downward so that it has an initial speed of 10m/s. What is the acceleration of each ball while in motion? (ans. 10 m/s²)
9. A ball thrown upward is caught by the thrower after 9.0s. What is the initial velocity of the ball? (Ans. 45 m/s)