

Vertically projected body

Questions

1. Is the net displacement of the body same as the total distance covered by it.?
2. What is the velocity of the body at the highest point?
3. At what instant is the displacement maximum? What is the velocity and acceleration of the body at that instant?
4. At what instant is the distance covered maximum?
5. What should be the increase in velocity of projection to attain double the height?
6. Is TOF doubled when initial velocity doubled?
7. Is the time of ascent same as time of descent?
8. What is the acceleration of the body at the highest point?
9. What is the angle between velocity and acceleration during (a) ascent (b) descent?
10. Is the distance covered by the body in the first second of ascent same as the distance covered in the first second of descent?
11. Is the distance covered by the body in the last second of ascent same as the distance covered in the first second of descent?
12. Chose a point at a particular height from the ground. Observe the instants of time at which the body crosses this point during ascent (t_1) and decent (t_2). Check the value of $t_1 + t_2$.
13. It is often quoted that ascent and decent of a vertically projected are symmetric. Cane you support that statement based on any observations?

Note :

Questions given above may be visualized and answered using the simulations.

Obtaining a mathematical solution is to be always treated as the final answer because such a mathematical solution implies that one is able to understand and apply the concept.

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