

Projectile

Questions

1. Is there any change in x -component of velocity during the flight of the projectile?
2. Is there any change in y -component of velocity during the flight of the projectile?
3. Is there any change in acceleration during the flight of the projectile?
4. What is the x -component of velocity of projectile at the highest point?
5. What is the y -component of velocity of projectile at the highest point?
6. What is the velocity of projectile at the highest point?
7. What is the angle between instantaneous velocity and acceleration due to gravity during (a) ascent (b) descent?
8. Keeping velocity same what happens to height of projectile if angle of projection is continuously increased from 10° to 90° ?
9. Keeping velocity same what happens to range of projectile if angle of projection is continuously increased from 10° to 90° ?
10. What are the two angles for which the range is same?
11. For the two angles mentioned above does the projectile have the same time of flight?
12. For the two angles mentioned above does the projectile attain the same height?
13. What is the angle of projection for which height attained by projectile is the maximum?
14. What is the angle of projection for which range of projectile is the maximum?
15. For what angle of projection is the range equal to height?

Note :

While simulations help to provide valuable insights and visualizations, a rigorous mathematical solution should always be considered as a benchmark, demonstrating not just familiarity with the concept, but a deep understanding of the underlying principles.

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