

1.6- Projectile Motion I Practice

Unit 1: Kinematics, Vectors, and Mathematics

Instructions for each problem:

- write out all possible variables, fill in the relevant values, eliminate variables not used
- draw/model the scenario
- Write the equations you are going to use before substituting values
- Show your work and track your units
- **Extend:** rearrange the equations first to solve for the unknown

1. A stone is thrown horizontally at 15 m/s from the top of a cliff 44 m high. How far from the base of the cliff does it hit the ground?
2. A stone is thrown horizontally at 15 m/s from the top of a cliff 44 m high. What is the velocity of the rock after 2.0 seconds?
3. An arrow is shot horizontally from the top of a tower at a speed of 15 m/s, and hits the ground with a speed of 25 m/s. Calculate the height of the tower.

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4. A ball is kicked horizontally off a 65 m high cliff with a velocity of 12 m/s.
- a) How long until the ball lands?

 - b) How far from the base of the cliff does it land?

 - c) Another ball kicked off the same cliff lands 100. m from the base. What was its velocity as it left the cliff?

Answers: 1. 45 m | 2. 25 m/s 53° below hz | 3. 20 m | 4a. 3.6 s, 4b. 44 m, 4c. 28 m/s