

wk.9.projectile_motion.4

A. projectile is shot off the edge of a cliff that is 130 m in height. The initial velocity of the projectile is 100 m/s and it is shot at a direction of 40° above horizontal.

1. Find the vertical and horizontal components of its initial velocity.
2. Find the time it takes for the projectile to reach the ground.
3. Find its range (the horizontal distance it lands from the bottom of the cliff)
4. Find the maximum height the projectile reaches *above the ground*.
5. Find the final vertical velocity of the projectile just before it hits the ground.
6. Find the final horizontal velocity just before it hits the ground.
7. Find the net velocity just before it hits the ground (magnitude and direction)

Answers: (1) vertical velocity 64 m/s. Horizontal velocity 77 m/s (2) 14.9 s (3) 1.14×10^3 m (4) 341 m (5) -82 m/s (6) 77 m/s (7) 112 m/s at -47°