

AP physics Unit 1 – Kinematics – Wkst: Projectile motion #1

Projectiles Launched Horizontally

1. A baseball rolls off a 0.75 m high desk and strikes the floor 1.35 m away from the base of the desk. How fast was the ball rolling?
2. Wile E. Coyote chases the Road Runner across a 15.0 m high cliff. The Road Runner steps out of the way, and Wile E. Coyote slides off the cliff and strikes the valley floor 13.3 m from the base of the cliff. When he slid off the cliff, what was his speed?
3. Superman flying along a horizontal path at 16.0 m/s and drops a bowling ball from a height of 15.54 m. The bowling ball falls for 1.78 seconds, how far travels does it travel horizontally before it hits the water below?
4. If Superman in problem #3, was traveling at the same speed and the bowling ball land 30.0 m horizontally from where he dropped it. How high above the water was superman flying?

Projectiles launched at an Angle

5. A golfer hits a golf ball at an angle of 25.0° to the ground. If the golf ball covers a horizontal distance of 305.5 m, what is the ball's maximum height?
6. In a scene in an action movie, a stuntman jumps from the top of one building to the top of another building 4.20 m away. With a running start he leaps at an angle of 15.2° (with respect of flat roof) with a velocity 5.40 m/s. Will he make it to the other roof, which is 2.50 m lower than the building he jumps from?
7. A baseball is thrown at an angle of 28.0° relative to the ground at a speed of 24.2 m/s. If the ball was caught 42.5 m from the thrower, how long as the ball in the air? How high above the thrower did the ball travel?