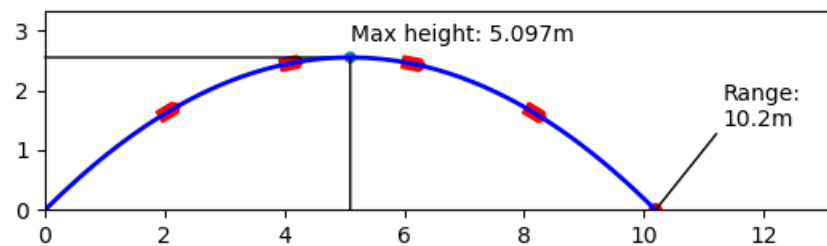


The Projectile Motion problems involves launching an object near the surface of the Earth. An object is given an initial velocity at an initial angle, and is subject to only the downward acceleration of gravity as the system evolves over time. Generally, modeling this system implements two assumptions: air resistance is negligible, and the acceleration due to gravity is constant throughout. This particular model also assumes the initial position of the object is on the ground. From the given initial conditions, we can deduce several properties of the motion: the maximum height the object reaches, the maximum range of the object before it hits the ground, and the length of time the object spends in the air.



Initial Conditions:

Launch Speed: 10.0 m/s

Launch Angle: 45.0 degrees

Vertical Launch Speed: 7.071 m/s

Horizontal Launch Speed: 7.071 m/s

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Results:

Range: 10.194 m

Maximum Height: 2.548 m

Hang Time: 1.442 s