

Answer on Question #48078, Physics, Mechanics — Kinematics — Dynamics Spider-Man is running at a speed of 4.5 m/s and swings on his web from a street light directly above him. How high can he swing?

Solution

We will use conservation of energy. Kinetic energy is equal to potential:

$$\frac{mv^2}{2} = mgh$$

Hence, he can swing at height

$$h = \frac{v^2}{2g} = \frac{4.5^2}{2 \cdot 9.8} \approx 1 \text{ m}$$