Assignment 3
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The problem is solved using Newton raphson's method combined with RK4 integration technique.

Given the values of variables:
$$c = 5.0$$
$$g = 9.8$$
$$final\_time = 2.0s$$

Initial guess taken for the velocities:
$$\dot{x}_1(0) = 1.0$$
$$\dot{y}_1(0) = -1.0$$
$$\dot{x}_2(0) = -1.0$$
$$\dot{y}_2(0) = 1.0$$

The value of initial velocities turn out to be:
$$\dot{x}_1(0) = 30.7753$$
$$\dot{y}_1(0) = -1.6437$$
$$\dot{x}_2(0) = -24.9153$$
$$\dot{y}_2(0) = 22.6025$$