Answer on question #69329, Physics / Other

Question the vertical hight y and horizontal direction x of a projectile on a certain planet are given by x=(3t)m and y+(4t-6t2)m .find the speed of projection.

Solution The speed is sum of x and y speeds. x speed is

$$v_x = \frac{dx}{dt} = 3 \, m/a$$

The y speed is

$$v_y = \frac{dy}{dt} = 4 - 12t = 4(1 - 3t) \, m/s$$

Hence, total speed is

$$v = \sqrt{v_x^2 + v_y^2} = \sqrt{3^2 + 4^2(1 - 6t + 9t^2)} = \sqrt{25 - 6t + 9t^2} \, m/s$$