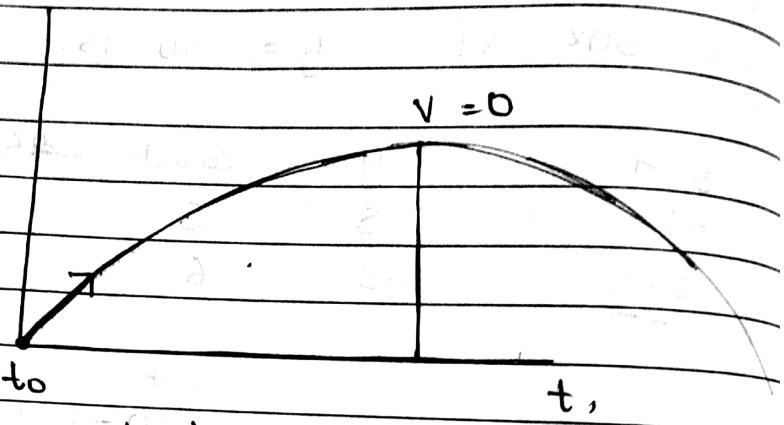
1. $u = u_1$

$V = V_2$

$V = u + at$

$s = ut + \frac{1}{2}at^2$

$V_{av} = \frac{u+V}{2}$



t increases constant.

$a_x = 0 \, m/s^2$

$a_y = -9.8 \, m/s^2$

$u = u_1$

$V = u + at \longrightarrow V = u + gt$

$u_x = u\cos\theta$

$u_y = u\sin\theta$

$V_x = u\cos\theta + 0 \times t$

$V_y = u\sin\theta - 9.8 \times t$

t is constant

$x = u\cos\theta t$

$y = u\sin\theta - \frac{1}{2}9.8 \times t^2$

$$s = ut + \frac{1}{2}at^2$$

$$s_y = u\sin\theta\, t - \frac{1}{2}9.8t^2$$

but at the end

$$y = 0$$

$$0 = u\sin\theta\, t - \frac{1}{2}9.8t^2$$

$$u\sin\theta\, t = \frac{1}{2}9.8t^2$$

$$t = \frac{2u\sin\theta}{9.8}$$

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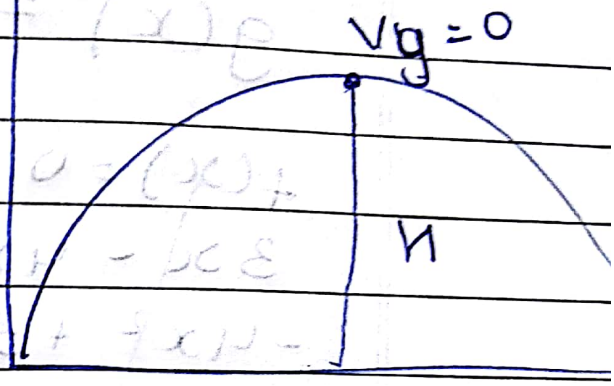
$v = u + at$

$v_y = u\sin\theta - gt$

$gt = v_g u\sin\theta - v_y$



$gt = u\sin\theta$

$t = \frac{u\sin\theta}{g}$

$h = u\sin\theta t - \frac{1}{2}g\left[\frac{u\sin\theta}{g}\right]^2$

$= u\sin\theta t - \frac{u^2\sin^2\theta}{2g}$

$= u\sin\theta\left[\frac{u\sin\theta}{g}\right] - \frac{u^2\sin^2\theta}{2g}$

$= \frac{u^2\sin^2\theta}{g} - \frac{u^2\sin^2\theta}{2g}$

$h = \frac{u^2\sin^2\theta}{2g}$ //