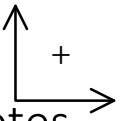
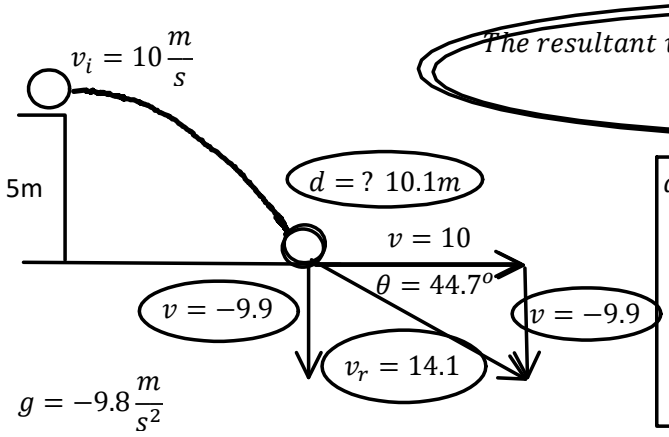
P11 - 2.7 - Ball Thrown Straight Out from Building Notes



The resultant velocity is $14.1\frac{m}{s}$ 44.7^o *below horizontal*

Last



$a^2 + b^2 = c^2$

$c = \sqrt{a^2 + b^2}$

$c = \sqrt{9.9^2 + 10^2}$

$c = 14.1\frac{m}{s}$

$tan\theta = \frac{o}{a}$

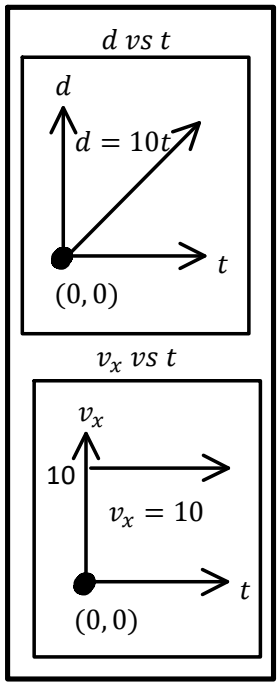
$\theta = \tan^{-1}\left(\frac{9.9}{10}\right)$

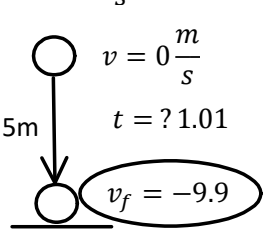
$\theta = 44.7^o$

OR

$h = \frac{a}{cos\theta}$

Over





$\Delta d = v_i t + \frac{1}{2}at^2$

$\Delta d = \frac{1}{2}at^2$

$t = \sqrt{\frac{2d}{a}}$

$t = \sqrt{\frac{2(-5)}{-9.8}}$

$t = 1.01s$

$v = v_i + at$

$v = at$

$v = (-9.8)(1.01)$

$v = -9.9\ \frac{m}{s}$

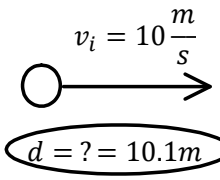
$\Delta d = d_f - d_i$

$\Delta d = 0 - 5$

$\Delta d = -5m$

Down

Time to Fall $= 1.01s$



Over

$v = \frac{d}{t}$

$d = vt$

$d = 10(1.01)$

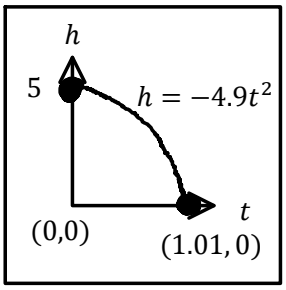
$d = 10.1m$

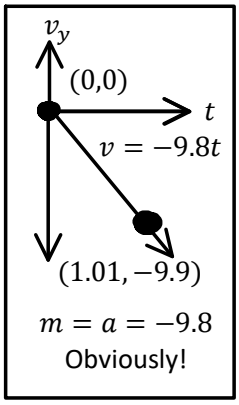
$\Delta d = v_i t + \frac{1}{2}at^2$

$\Delta d = v_i t$

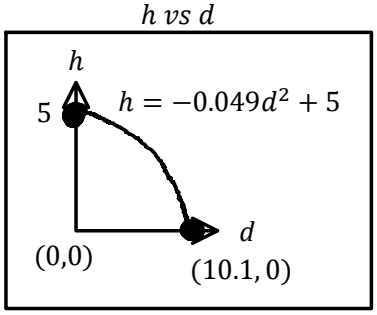
; $a = 0$

Time is the Link Between x and y, Galileo





Pre Calc 12



$h(t) = -4.9t^2 + 5$

$h(d) = -4.9\left(\frac{d}{10}\right)^2 + 5$

$t = \frac{d}{v}$

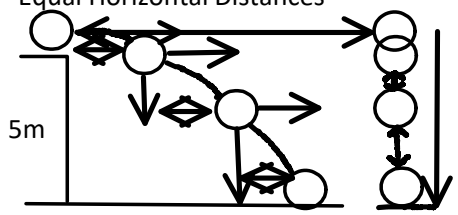
$t = \frac{d}{10}$

$h(d) = -0.049d^2 + 5$

Logic

$a_x = 0$

Equal Horizontal Distances



$a_y = -9.8\frac{m}{s^2}$

Greater Vertical Distances