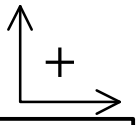
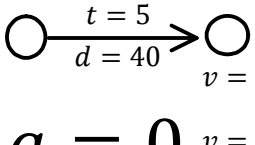
P11 - 2.0 - Kin Summary Detail Notes





$a = 0$

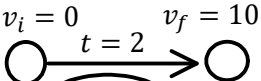
$v = \frac{40}{5}$

$v = 8\frac{m}{s}$

t	d
0	0
1	8
2	16
3	24
4	32
5	40

Over $a = \#$

t	v
0	0
1	5
2	10



$a = 5$

$d = 10$

$v_f = v_i + at$

$a = \frac{v_f}{t}$

$a = \frac{10}{2}$

$a = 5\frac{m}{s^2}$

$v_f^2 = v_i^2 + 2ad$

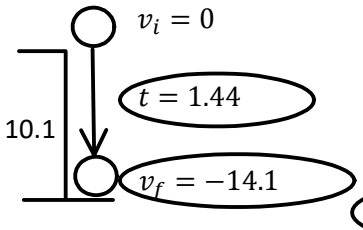
$d = \frac{v_f^2}{2a}$

$d = \frac{10^2}{2(5)}$

$d = 10\,m$

$a = -9.8$

Down



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

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

$t = \sqrt{\frac{2(-10.1)}{-9.8}}$

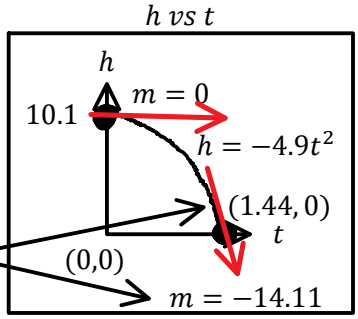
$t = 1.44s$

$v_f = v_i + at$

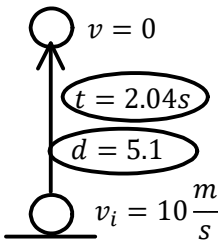
$v_f = at$

$v_f = (-9.8)(1.44)$

$v_f = -14.11\frac{m}{s}$



Up/Down



$v_f^2 = v_i^2 + 2ad$

$0 = v_i^2 + 2ad$

$d = \frac{-v_i^2}{2a}$

$d = \frac{-10^2}{2(-9.8)}$

$d = 5.1m$

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

$0 = 10t + \frac{1}{2}(-9.8)t^2$

$0 = -10t - 4.9t^2$

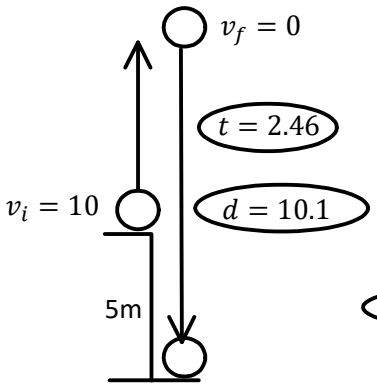
$0 = -4.9t(t - 2.04)$

$-4.9t = 0$ $\quad t - 2.04 = 0$

$t = 0s$ $\quad t = 2.04s$

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Or Quadform



$v_f^2 = v_i^2 + 2ad$

$0 = v_i^2 + 2ad$

$d = \frac{-v_i^2}{2d}$

$d = \frac{-10_i^2}{2d}$

$d = 5.1m$

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

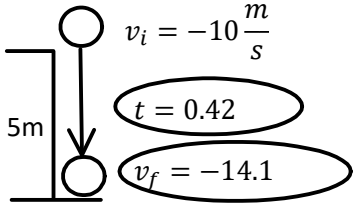
$-5 = 10t + \frac{1}{2}(-9.8)t^2$

$0 = -4.9t^2 + 10t + 5.0$

$t = -ve$ $\quad t = 2.46s$

Quadform

$2.46 = 2.04 + 0.42$



$v_f^2 = v_i^2 + 2ad$

$v_f^2 = (-10)^2 + 2(-9.8)(-5)$

$v_f^2 = 198$

$v_f = -14.1\frac{m}{s}$

$v_f = v_i + at$

$-14.1 = -10 + (-9.8)t$

$t = 0.42s$

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