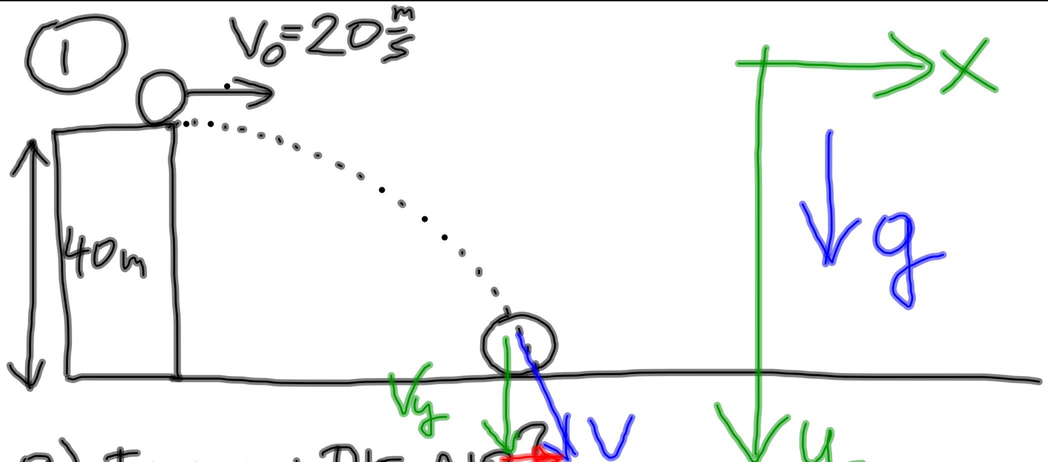
1



a) TIME IN THE AIR?

b) RANGE? (Δx)

c) V JUST BEFORE IT HITS THE GROUND? (MAG. & DIR.)

Oct 21-7:46 AM

x	y
$V_{0x} = 20\,\frac{m}{s}$	$V_{0y} = 0$
$V_x = V_{0x} = 20\,\frac{m}{s}$	$V_y = ?$
$a_x = 0$! ALWAYS!	$g = 9.8\,\frac{m}{s^2}$
$\Delta x = ?$	$\Delta y = 40\text{ m}$
$t = ?$	$t = ?$

Oct 21-7:56 AM

a)

y $\Delta y = V_{oy}t + \frac{1}{2}gt^2$

$40 = 0 + 4.9t^2$

$\boxed{t = 2.86\ s}$

b)

x $\Delta x = \frac{1}{2}(V_{ox} + V_x)t$

$\Delta x = \frac{1}{2}(20 + 20)(2.86)$

$\boxed{\Delta x = 57.2\ m}$

Oct 21-8:02 AM

c $\vec{V} = \vec{V}_x + \vec{V}_y$

x $V_x = V_{ox} = 20\frac{m}{s}$

y $V_y = V_{oy} + gt$

$V_y = 0 + 9.8(2.86)$

$\boxed{V_y = 28.0\frac{m}{s}}$

$V = \sqrt{V_x^2 + V_y^2}$ $V = \sqrt{20^2 + 28^2}$

Oct 21-8:08 AM

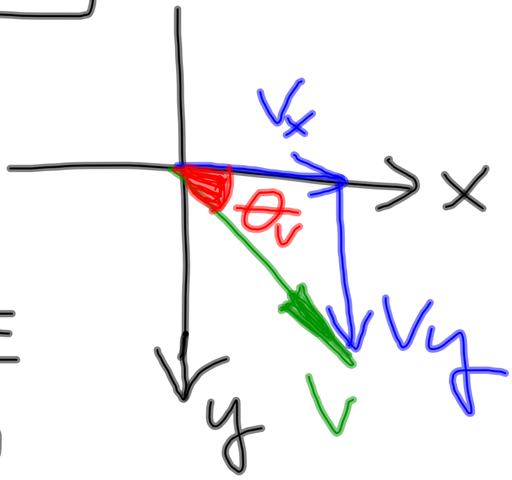
$$\boxed{V = 34.4\ \frac{m}{s}}$$

$$\theta_v = \tan^{-1}\left|\frac{V_y}{V_x}\right|$$

$$\theta_v = 54.5^\circ \text{ S of E}$$

OR

BELOW HORIZONTAL



Oct 21-8:14 AM