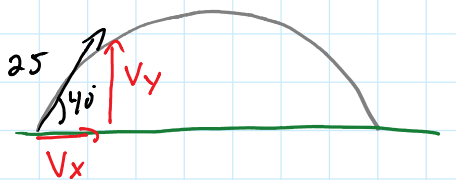


Ex: A baseball is hit at 25 m/s @ 40° (assume it's hit level with ground)
(ant baseball)

a) Determine its vertical velocity, after 3.0 s



$$V_x = 25 \cos 40^\circ = 19.2 \text{ m/s}$$

$$V_y = 25 \sin 40^\circ = 16.1 \text{ m/s}$$

X	Y
$V_0 = 19.2 \text{ m/s}$	$V_0 = 16.1 \text{ m/s}$
	$a = -9.8 \text{ m/s}^2$
	$t = 3.0 \text{ s}$
	$V_f = ?$

$$\begin{aligned} V_f &= V_0 + at \\ &= 16.1 + (-9.8)(3.0) \\ &= -13.3 \text{ m/s} \\ &\quad \uparrow \\ &\quad \text{going down} \end{aligned}$$

b) Vertical velocity when 10 m high?

X	Y
	$V_0 = 16 \text{ m/s}$
	$a = -9.8 \text{ m/s}^2$
	$d = 10 \text{ m}$
	$V_f = ?$

$$\begin{aligned} V_f^2 &= V_0^2 + 2ad \\ &= 16^2 + 2(-9.8)10 \\ &= 256 - 196 \end{aligned}$$

$$V_f^2 = 60$$

$$V_f = \pm \sqrt{60} = \pm 7.75 \text{ m/s}$$

why 2 answers \rightarrow

