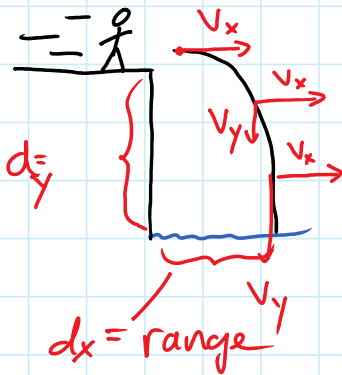


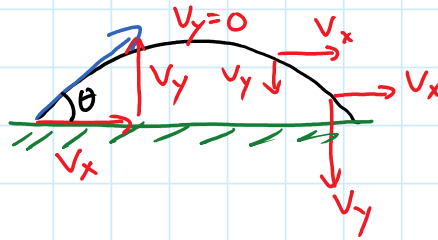
Projectiles I

Thursday, February 8, 2018 2:10 PM

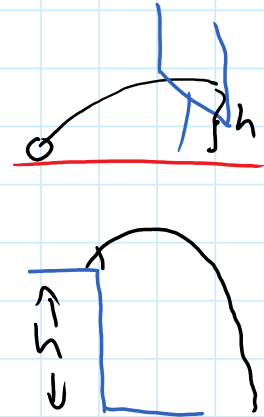
Type I



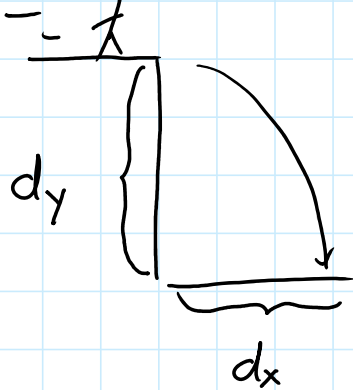
Type II



Type III



ex $V_0 = 8 \text{ m/s}$, $t = 2.0 \text{ s}$



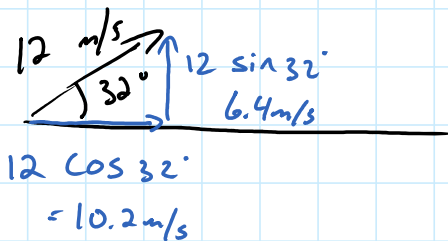
X	Y
$V = 8.0 \text{ m/s}$	$V_0 = 0 \text{ m/s}$
$t = 2.0 \text{ s}$	$t = 2.0 \text{ s}$
$V = \frac{d}{t}$	$a = -9.8 \text{ m/s}^2$
$d = V \cdot t$	$d = ?$
$= 16 \text{ m}$	

$$d = V_0 t + \frac{1}{2} a t^2$$

$$d = \frac{1}{2} (-9.8) (2)^2$$

$$= -19.6 \text{ m}$$

ex



X	Y
$V_x = 10.2 \text{ m/s}$	$V_y = 6.4 \text{ m/s}$
	$a = -9.8 \text{ m/s}^2$
	$V_f = 0$
	$d = ?$

time in air

$$V_f = 0 \quad V_f = V_0 + at$$

$$0 = 6.4 + (-9.8)t$$

$$t = .65 \text{ s} \times 2 = 1.3 \text{ s}$$

max height

$$V_f = 0$$

height at 1.0 sec

$$t = 1.0 \text{ sec} \quad d = V_0 t + \frac{1}{2} a t^2$$

$$= 6.4(1) + \frac{1}{2} (-9.8)(1)^2$$

$$V_f^2 = V_0^2 + 2ad$$

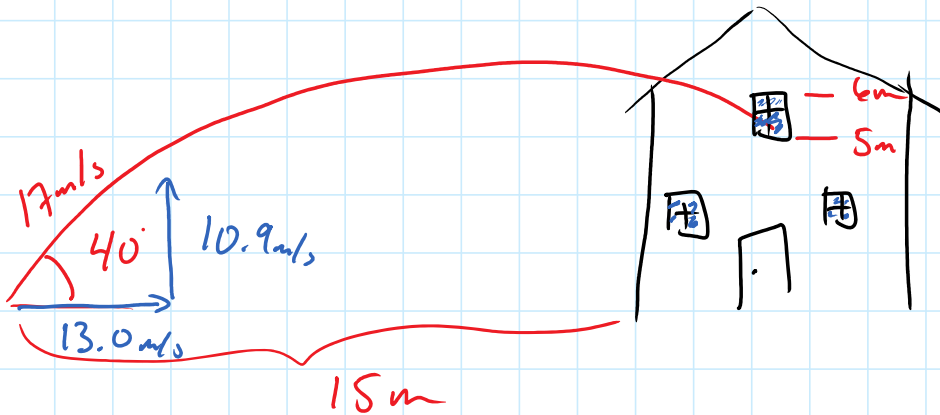
$$0^2 = (6.4)^2 + 2(-9.8)d$$

$$d = 2.1 \text{ m}$$

$$= 6.4 - 4.9$$

$$= 1.5 \text{ m}$$

Ex



do you hit
the window?

$$d_y = v_{0y} t + \frac{1}{2} a t^2$$

$$= (10.9)(1.154) + \frac{1}{2}(-9.8)(1.154)^2$$

$$12.58 - 6.52 = 6.05 \text{ m}$$

x	y
$v = 13 \text{ m/s}$	$v = 10.9 \text{ m/s}$
$d = 15 \text{ m}$	$a = -9.8 \text{ m/s}^2$
$v = \frac{d}{t}, t = \frac{d}{v}$	$t = 1.154 \text{ s}$
$= \frac{15}{13 \text{ m}}$	
$= 1.154 \text{ s}$	