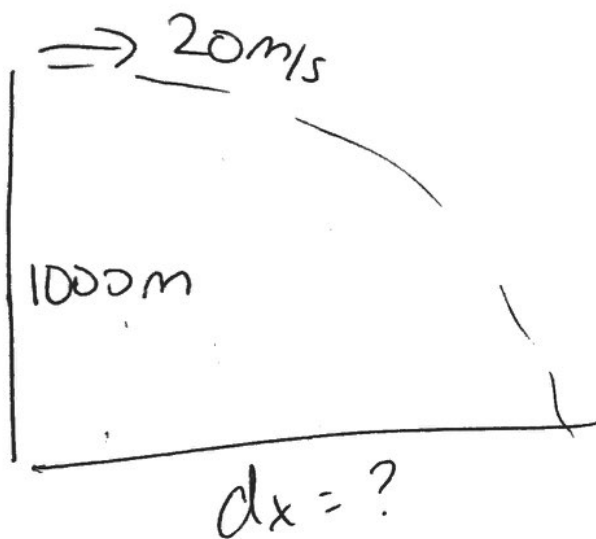
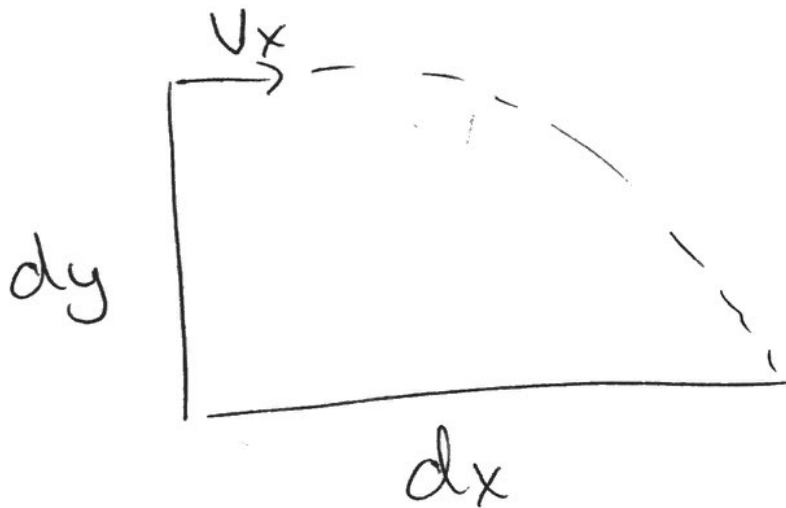


On Quiz:

horizontal launch problems



Step 1: write givens

Step 2: find time

Step 3: solve for missing information

$$t = \sqrt{\frac{2 dy}{g}}$$

$$t = \sqrt{\frac{2(1000)}{9.8}}$$

$$t = 14.2 \text{ s}$$

$$dx = v_x t$$

$$dx = (20)(14.2)$$

$$dx = 284 \text{ m}$$

Vector addition

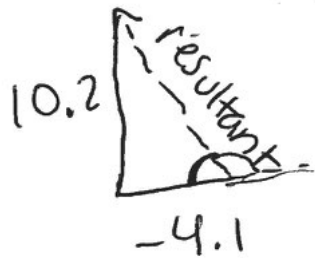
			<u>cos</u> X	<u>sin</u> y
V_1	27	@ 60°	$27 \cos 60$ 13.5	$27 \sin 60$ 23.4
V_2	32	@ 187°	$32 \cos 187$ 30.8	$32 \sin 187$ -3.9
V_3	17	@ 326.5°	$17 \cos 326.5$ 14.2	$17 \sin 326.5$ -9.3
			$X_T = -4.1$	$y_T = 10.2$

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

$$(-4.1)^2 + (10.2)^2 = c^2$$

magnitude \rightarrow

$$\boxed{11 = c}$$



$$\tan^{-1}\left(\frac{10.2}{-4.1}\right) = -68^\circ$$

$$180 - 68^\circ = 112^\circ$$

Final answer $11 @ 112^\circ$