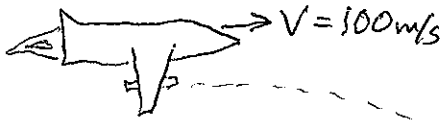


#4



$$D_x = \frac{1}{2}At^2 + V_i t$$

$$V_i t = D$$

$$100 \text{ m/s} (20.2 \text{ s})$$

X		Y
100 m/s	V_i	0
	V_a	
0	A	-9.8 m/s^2
* 2020 m	D	2000 m
20.2 s	t	20.2 sec

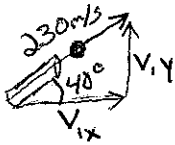
$$\Delta D_y = \frac{1}{2}A_y t^2 + V_{iy} t$$

$$0 - 2000 \text{ m} = \frac{1}{2}(-9.8 \text{ m/s}^2)t^2 + 0$$

$$\frac{-2000 \text{ m}}{-4.9 \text{ m/s}^2} = t^2 = 408.16 \text{ s}^2$$

$$t = 20.2 \text{ sec}$$

#5



$$D_x = \frac{1}{2}A_x t^2 + V_{ix} t$$

$$D_x = V_{ix} t$$

$$D_x = 176.2 \text{ m/s} (30.2 \text{ s}) = 5321.2 \text{ m}$$

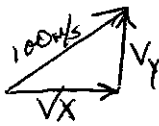
X		Y top
$230 \text{ m/s} \cos(40) = 176.2$	V_i	$230 \text{ m/s} \sin(40) = 147.8 \text{ m/s}$
	V_a	0
0	A	-9.8 m/s^2
	D	
30.2 sec	t	$\frac{1}{2}t = 15.1 \text{ sec}$

$$V_{ay} = V_{iy} + A_y t$$

$$0 = 147.8 \text{ m/s} + (-9.8 \text{ m/s}^2)t$$

$$t = 15.1 \text{ sec}$$

#8



$$D_x = V_{ix} t$$

$$D_x = 86.6 \text{ m/s} (10.2 \text{ s})$$

X		Y top
$100 \text{ m/s} \cos(30) = 86.6 \text{ m/s}$	V_i	$100 \text{ m/s} \sin(30) = 50 \text{ m/s}$
	V_a	0
0	A	-9.8 m/s^2
	D	
10.2 s	t	$\frac{1}{2}t = 5.1 \text{ sec}$

$$V_{ay} = V_{iy} + A_y t$$

$$0 = 50 \text{ m/s} + (-9.8 \text{ m/s}^2)t$$

$$t =$$