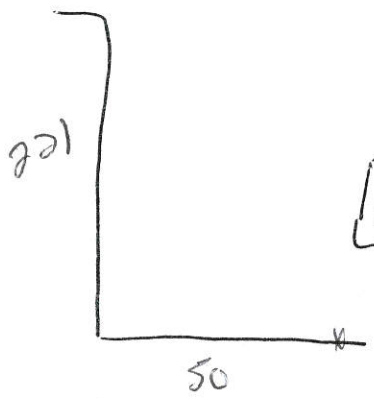
Problem 1 SET 220

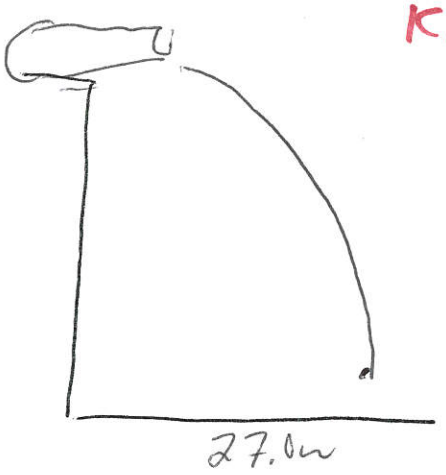
KEY



$D = \frac{1}{2} a t^2$

$221 = \frac{1}{2} 9.81 t^2$

$6.71 = t$



$V_x = \frac{D_x}{t} \quad t = \frac{D_x}{V_x}$

$V_x = \frac{D_x}{t} = \frac{50}{6.71}$ #1

$7.45\ V_x$

$\frac{27.0m}{7.45 m/s}$

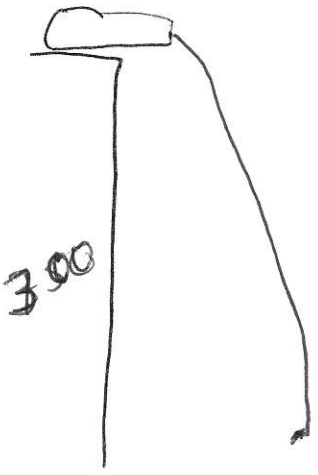
$t = 3.62$

$V_y = g t$

$V_y = 9.81 \cdot 6.71 =$ #2 $65.9\ V_y$

$D = \frac{1}{2} a t^2$

$D = \frac{1}{2} 9.81 (3.62)^2$



$D = \frac{1}{2} a t^2$

$300 = \frac{1}{2} 9.81 t^2$

$7.82\ t$

$D_y = 64.4m$

$V_y = g t$

$V_x = \frac{D_y}{t} \quad V_x \cdot t = D_x$

7.45×7.82 #3

$65.9\ D_x$

$V_y = 9.81 \cdot 3.62$

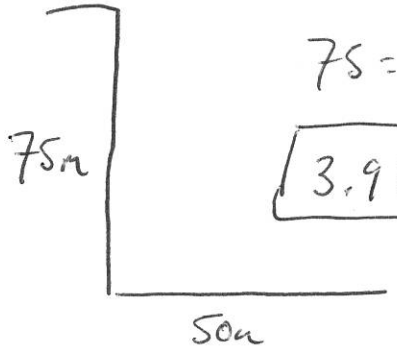
$V_y = 35.6 m/s$

Problem Set 2

$D = \frac{1}{2} a t^2$

$75 = 4.905 t^2$

$3.91 = t$



#5

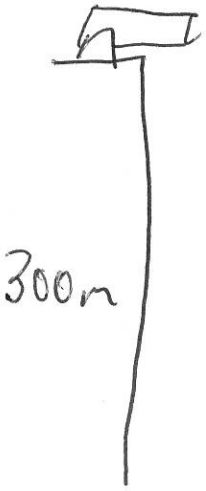
$V_x = \frac{D_x}{t} = \frac{50m}{3.91}$ **12.8 m/s**

$V_y = g t$

$V_y = 9.81(3.91)$

#6

$V_y = 38.4 m/s$



$D = \frac{1}{2} a t^2$

$300m = 4.905 t^2$

$7.82 = t$

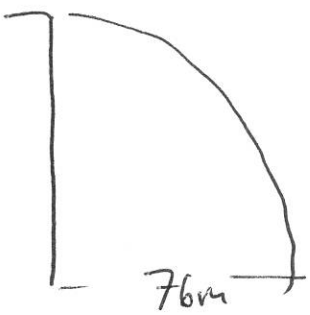
$V_x = \frac{D_x}{t}$ $V_x \cdot t = D_x$

$12.8 m/s \cdot 7.82 = D_x$

#7

$100. m = D_x$

#8



$V_x = \frac{D_x}{t}$ $12.8 = \frac{76}{t}$

$t = \frac{76}{12.8}$

$t = 5.94 s$

$D = \frac{1}{2} a t^2$

$D = \frac{1}{2} a (5.94)^2$

$D = 173 m$

$V_y = g t$

$V_y = 9.81 \cdot 5.94$

$V_y = 58.31$

Problem set 3

$D = \frac{1}{2} a t^2$

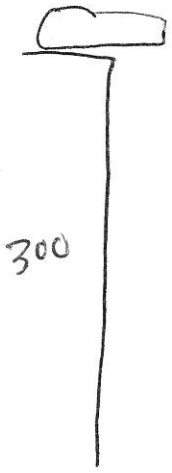
$17.94 = t^2$

$\boxed{4.24 = t}$

$V_x = \frac{D_x}{t} = \frac{50}{4.24}$ #1 $\boxed{11.8 \text{ m/s } V_x}$

$V_y = g t$

$V_y = 9.81 \cdot 4.24 = \boxed{41.6 \, V_y}$ #2



$D = \frac{1}{2} a t^2$

$300 = 4.905 \, t^2$

$\boxed{7.82 \, t}$

$V_x = \frac{D_y}{t}$ $V_x \cdot t = D_x$

7.82×11.8 #3

$\boxed{92.3 \, D_x}$

$V_x = \frac{D_x}{t}$ $t = \frac{D_x}{V_x}$

$t = \frac{68.4}{11.8}$

$\boxed{t = 5.80}$

$D = \frac{1}{2} a t^2$

$D = \frac{1}{2} 9.81 \cdot 5.80$

$\boxed{D_y = 165_M}$

$V_y = 9.81 \cdot 5.80$

$\boxed{V_y = \cancel{5.69} \; 56.90}$