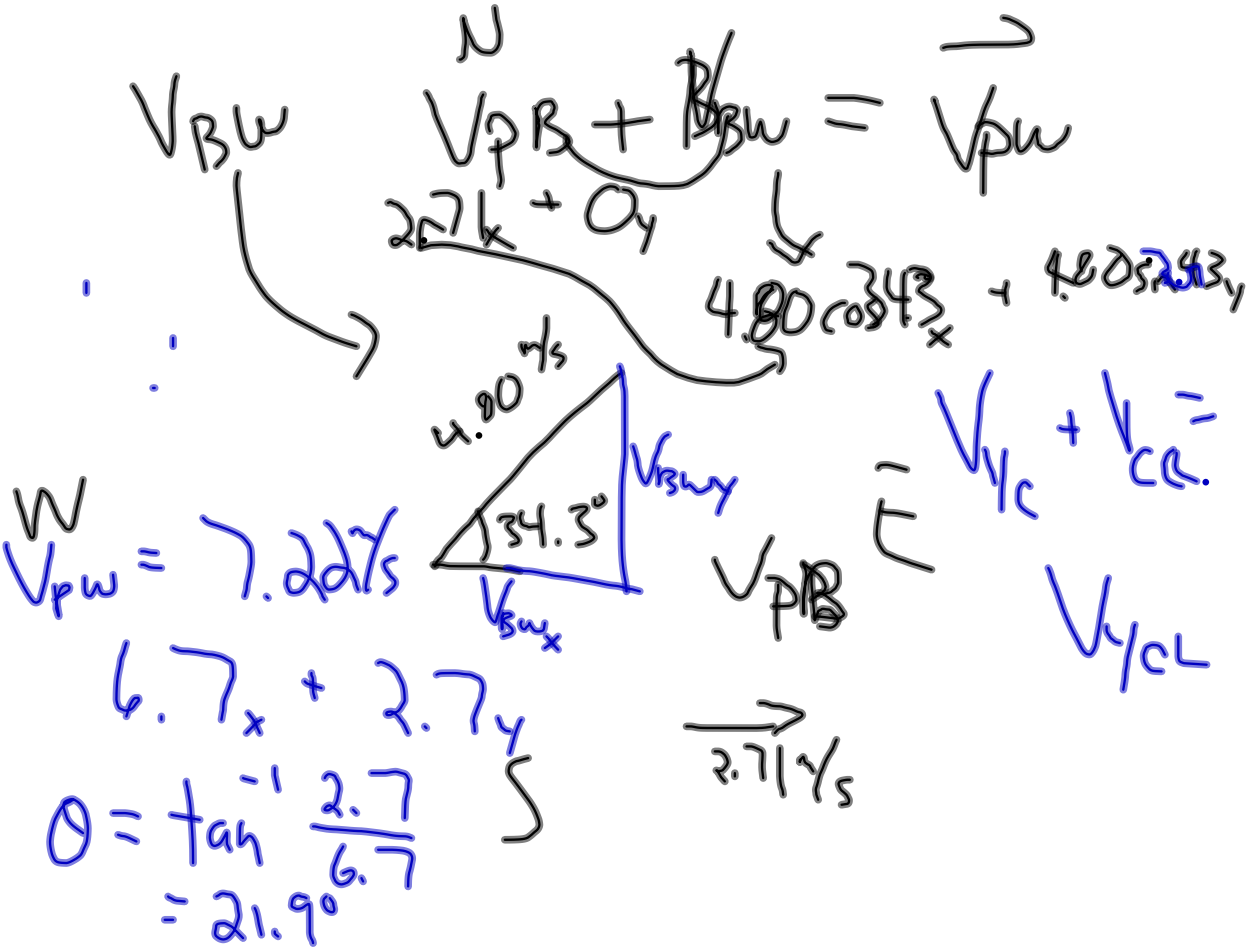
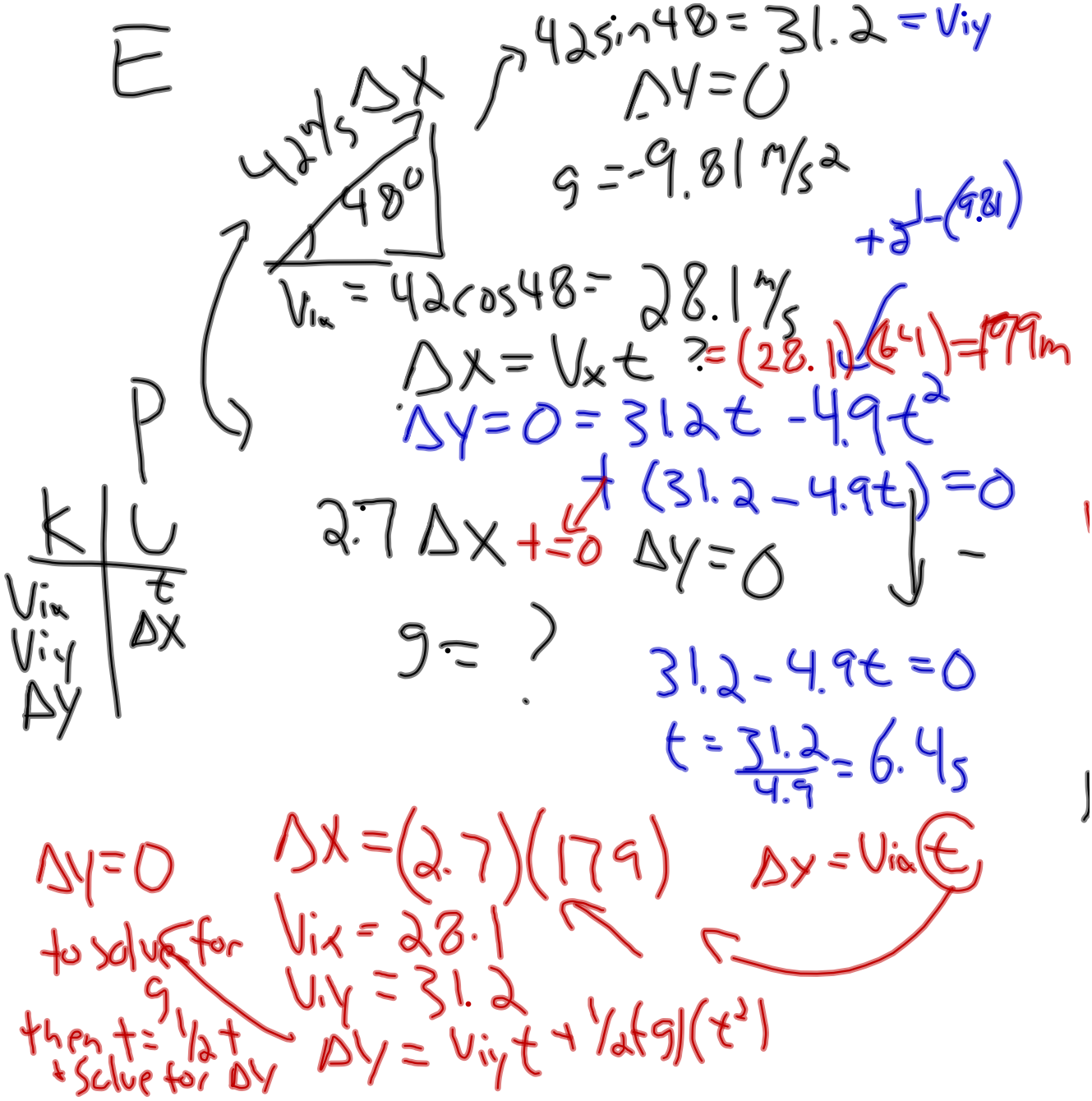
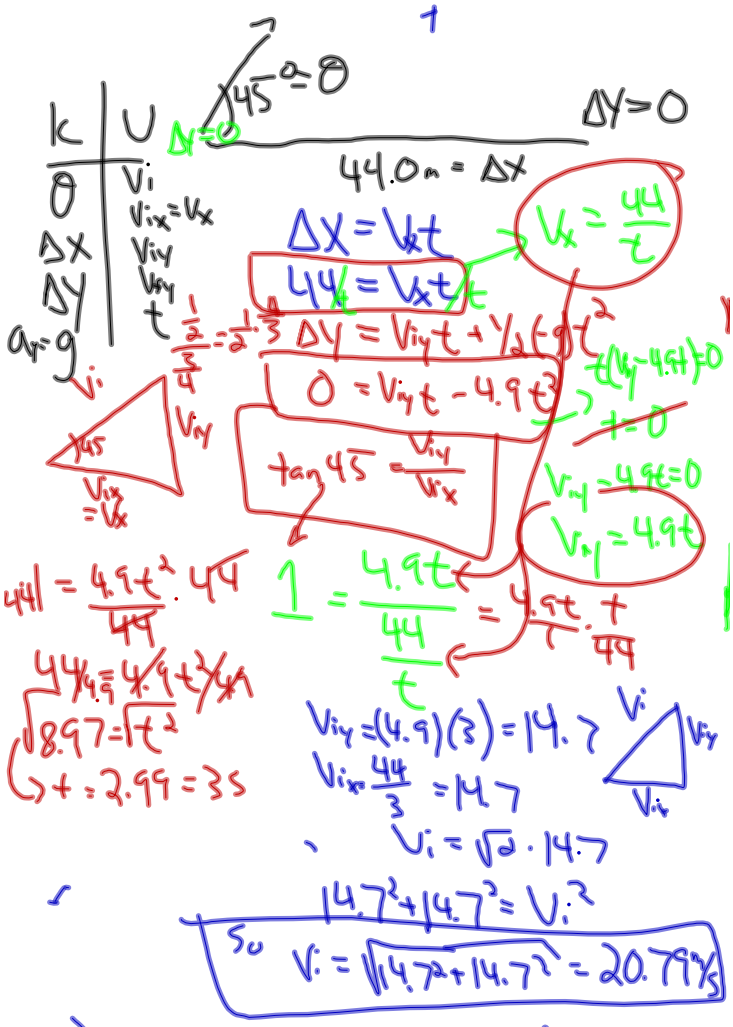

N
V_{BW}
$V_{PB} + V_{BW} = V_{PW}$
$2.7\hat{i} + 0\hat{j}$
$4.80\cos 34.3\hat{i} + 4.80\sin 34.3\hat{j}$
4.80 m/s
V_{BWy}
34.3°
V_{BWx}
W
$V_{PW} = 7.22$ m/s
$6.7\hat{i} + 2.7\hat{j}$
$\theta = \tan^{-1}\frac{2.7}{6.7}$
$= 21.9°$
V_{PB}
$2.71\hat{j}$ m/s
$V_{I/C} + V_{C/L} =$
$V_{I/CL}$


E
42 m/s
48°
Δx
$42\sin 48 = 31.2 = v_{iy}$
$\Delta y = 0$
$g = -9.81\ m/s^2$
$+g\ -(9.81)$
$v_{ix} = 42\cos 48 = 28.1\ m/s$
$\Delta x = v_x t = (28.1)(6.4) = 179m$
$\Delta y = 0 = 31.2t - 4.9t^2$
$t(31.2 - 4.9t) = 0$
P
K | U
t
v_{ix}
v_{iy}
Δy
Δx
$2.7\ \Delta x$
$t = 0$
$\Delta y = 0$
$g = ?$
$31.2 - 4.9t = 0$
$t = \frac{31.2}{4.9} = 6.4s$
$\Delta y = 0$
to solve for g
then $t = \frac{1}{2}t$
+ solve for Δy
$\Delta x = (2.7)(179)$
$v_{ix} = 28.1$
$v_{iy} = 31.2$
$\Delta y = v_{iy}t + \frac{1}{2}(g)(t^2)$
$\Delta y = v_{ix}t$

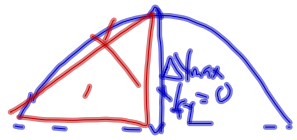
a) $V_i = ?$

$\frac{44}{1} = 4.9t$



b) $\Delta y_{max.}$

$t = 1.5$



$\Delta y = V_{iy} t + \frac{1}{2}(-g)t^2$

$= (14.7)(1.5) - 4.9(1.5)^2$

$22.05 - 11.02$

$= 11.03m$

$V_{fy}^2 = V_{iy}^2 + 2(-g)(\Delta y)$

$0 = 14.7^2 - 19.6(\Delta y)$

$0 = 216.1 - 19.6\Delta y$

$\frac{19.6\Delta y}{19.6} = \frac{216.1}{19.6}$

$\Delta y = 11.03m$

c)

$V_{iy} = 20.8\ m/s$ ↑

$V_{fy} = 0$

$a = -g$

$V_f^2 = V_i^2 + 2a\Delta y$

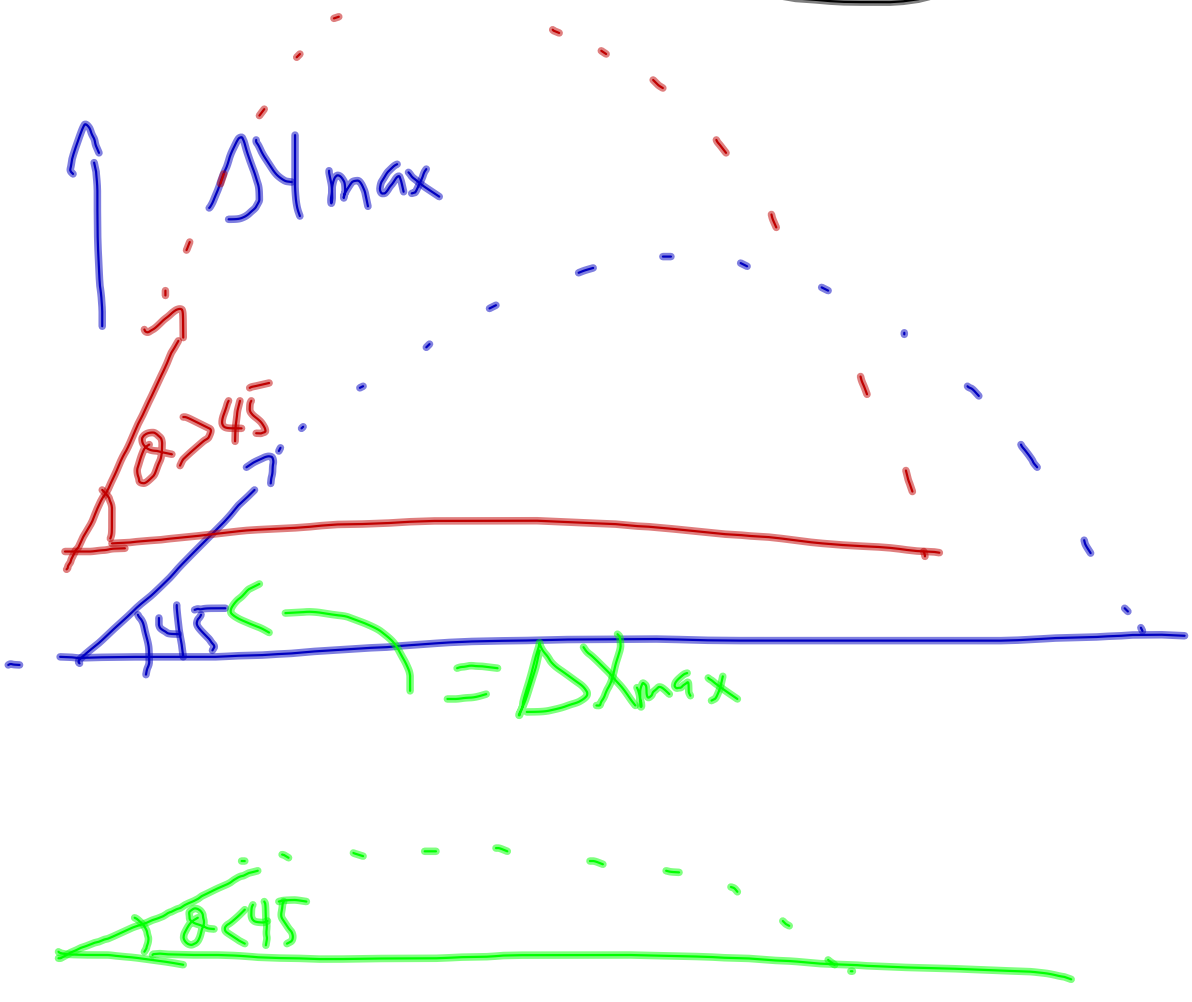
$0 = 20.8^2 + 2(-9.81)(\Delta y)$

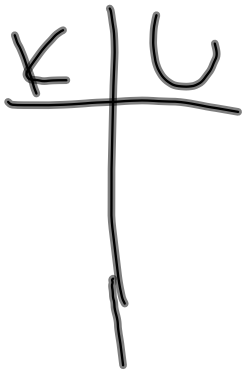
$0 = 432.64 - 19.62\Delta y$

$19.62\Delta y = 432.64$

$\frac{19.62\Delta y}{19.62} = \frac{432.64}{19.62}$

$\Delta y = 22.02\,m$





$$\Delta x = v_x t$$

$$v_{fy} = v_{iy} + (-g)t$$

$$\Delta y = v_{iy} + \tfrac{1}{2}(-g)t^2$$

$$v_f^2 = v_i^2 + 2(-g)\Delta y$$