

222B PARABOLIC EQUATIONS (TI-84 Lists)

IN CLASS: Using Lists function on TI-84 for Parabolic Equations:

L1 =velocity

L2 =angle

L3 = $L1\cos L2$ (velocity in the X direction)

L4 = $L1\sin L2$ (velocity in the Y direction)

L5 = $L4/9.81$ (time up)

L6 = $L4*L5 - 0.5*9.81*L5^2$ (Ymax Height)

XMAX = $L3*2*L5$ (Xmax Height)

To name a list: [alpha] – STO→ [alpha] - ÷ [alpha] – MATH [alpha] – STO→ =(XMAX)

Velocity	Angle	Vx	Vy	Time up	Ymax	Xmax
10.0	0.00					
10.0	15.0					
10.0	30.0					
10.0	45.0					
10.0	60.0					
10.0	75.0					
10.0	90.0					

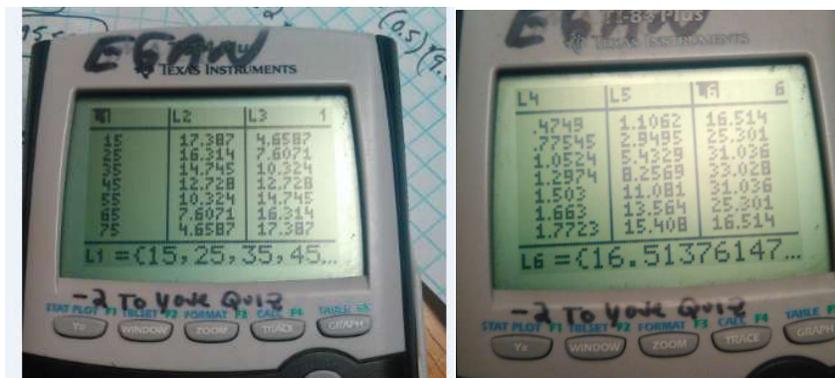
IN CLASS #2:

Velocity is always 18.0m/s

Angle	Vxo	Vyo	Tu	Ymax	Xmax
15.0					
25.0					
35.0					
45.0					
55.0					
65.0					
75.0					
85.0					

Lists are the best way to go when doing multiple angles!!!!

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When complete, test your Xmax and measure your Ymax for each angle using the simulation.

Homework#1 Velocity is always 16.5m/s

Angle	Vxo	Vyo	Tu	Ymax	Xmax
33.4					
40.2					
52.1					
67.8					

Homework#2 Velocity is always 13.4m/s

Angle	Vxo	Vyo	Tu	Ymax	Xmax
12.4					
43.2					
48.1					
78.3					

Homework#3 Velocity Changes!!!

Which Angle and Velocity combination has the Highest Ymax and the farthest Xmax?

Velocity	Angle	Vx	Vy	Time up	Ymax	Xmax
100.0	10.2					
50.0	25.0					
40.0	45.0					
50.0	50.0					
100.0	75.4					
230.0	81.0					