

222A PARABOLIC EQUATIONS (TI-84 Lists)

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

Cannon is shot at 51m/s at 78.7°

$V_{oy}$  = Cannon ball is going up vertically at 50m/s ( $51 \sin 78.7 = 50\text{m/s}$ )

$V_{ox}$  = Cannon ball is flying horizontally at 10m/s ( $51 \cos 78.7 = 10\text{m/s}$ )

$L1$  = Time

$L2 = V_{oy} + -10 * L1$  (velocity in the vertical direction)

$L3 = V_{oy} * L1 + 0.5 * -10 * L1^2$  (distance in the Y direction)

$L4 = V_{ox}$  (velocity in the X direction)

$L5 = L1 * L4$  (distance in the X direction)

**Graph:**

XList = L5

YList = L3

**Quadreg** L5 vs L3

**In class #1:**

$L1 = \text{Time}$	$L2 = V_y$	$L3 = D_y$	$L4 = V_x$	$L5 = D_x$
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

After you get the equation for a curved line:

[trace] to scroll through the line and see all the values

To find a value:

[2<sup>nd</sup>][trace]

[1] value

X=22.6m (horizontal distance)

Y=87.5m (vertical distance)

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In class #2:

Cannon is shot at 42.5m/s at 45°

Cannon ball is going up vertically at \_\_\_\_\_ m/s  $V_{oy}$  ( $42.5 \sin 45 =$  \_\_\_\_\_ m/s)

Cannon ball is flying horizontally at \_\_\_\_\_ m/s  $V_{ox}$  ( $42.5 \cos 45 =$  \_\_\_\_\_ m/s)

<b>L1= Time</b>	<b>L2=Vy</b>	<b>L3=Dy</b>	<b>L4=Vx</b>	<b>L5=Dx</b>
<b>0</b>				
<b>1</b>				
<b>2</b>				
<b>3</b>				
<b>4</b>				
<b>5</b>				
<b>6</b>				
<b>7</b>				
<b>8</b>				
<b>9</b>				
<b>10</b>				

After you get the equation for a curved line:

[2<sup>nd</sup>][trace]

[1] value

X=22m (horizontal distance)

Y= \_\_\_\_\_ m (vertical distance)

X=88m (horizontal distance)

Y= \_\_\_\_\_ m (vertical distance)

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**HOMEWORK #1:**

Cannon is shot at 50m/s at 65°

Cannon ball is going up vertically at \_\_\_\_\_ m/s  $V_y$  ( $50\sin 65 =$  \_\_\_\_\_ m/s)

Cannon ball is flying horizontally at \_\_\_\_\_ m/s  $V_x$  ( $50 \cos 65 =$  \_\_\_\_\_ m/s)

<b>L1= Time</b>	<b>L2=Vy</b>	<b>L3=Dy</b>	<b>L4=Vx</b>	<b>L5=Dx</b>
<b>0</b>				
<b>1</b>				
<b>2</b>				
<b>3</b>				
<b>4</b>				
<b>5</b>				
<b>6</b>				
<b>7</b>				
<b>8</b>				
<b>9</b>				
<b>10</b>				

After you get the equation for a curved line:

[2<sup>nd</sup>][trace]

[1] value

X=22m (horizontal distance)

Y= \_\_\_\_\_ m (vertical distance)

X=88m (horizontal distance)

Y= \_\_\_\_\_ m (vertical distance)

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**HOMEWORK #2:**

Cannon is shot at 65m/s at 70°

Cannon ball is going up vertically at \_\_\_\_\_ m/s  $V_y$  ( $65 \sin 70 =$  \_\_\_\_\_ m/s)

Cannon ball is flying horizontally at \_\_\_\_\_ m/s  $V_x$  ( $65 \cos 70 =$  \_\_\_\_\_ m/s)

<b>L1= Time</b>	<b>L2=Vy</b>	<b>L3=Dy</b>	<b>L4=Vx</b>	<b>L5=Dx</b>
<b>0</b>				
<b>1</b>				
<b>2</b>				
<b>3</b>				
<b>4</b>				
<b>5</b>				
<b>6</b>				
<b>7</b>				
<b>8</b>				
<b>9</b>				
<b>10</b>				
<b>11</b>				
<b>12</b>				
<b>13</b>				

After you get the equation for a curved line:

[2<sup>nd</sup>][trace]

[1] value

X=22m (horizontal distance)

Y=\_\_\_\_\_m (vertical distance)

X=88m (horizontal distance)

Y=\_\_\_\_\_m (vertical distance)