

Investigating Slope & y-intercept

Your Task: You will physically represent a linear function and then reflect on that function's slope, y-intercept, xy table, and graph. At the end of the inquiry, you should be able to fully describe a linear function and write its equation in $y = mx + b$ format. You will use this understanding to fully describe the functions you used on your paper rollercoaster.

For this inquiry, **you will need:**

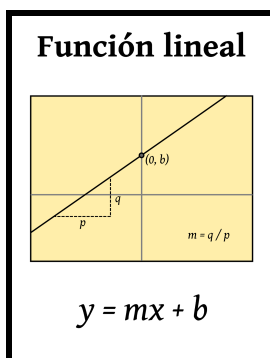
- 2 meter sticks
- Wooden ramp
- Sticky notes
- Tennis Ball
- Markers
- Your composition book

Step 1: Assemble your slope model.

The wooden ramp will represent your function. The meter sticks represent your x and y axis. The left, vertical side of the grid is your y axis, while the bottom, horizontal side of the grid is your x axis.

Step 2: Represent the function with your model.

For example, you may be given the xy table. Use your mathematical skillz and the xy table to decide how you should position the ramp to represent the function.



Step 3: Represent the function in different ways.

Represent the function with:


- The graph
- xy table
- Slope triangle & y-intercept

Step 4: Given the slope and y-intercept, generate the equation.


Step 5: Observe the speed of the ball.

Roll the tennis ball down the wooden ramp and jot down your observations about its speed.


Function #1

Graph 	<table border="1"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td>0</td><td>4</td></tr><tr><td>1</td><td>2</td></tr><tr><td>2</td><td>0</td></tr></tbody></table>	x	y	0	4	1	2	2	0	Slope Triangle
x	y									
0	4									
1	2									
2	0									
y-intercept	Observations	Equation								


Function #2

Graph 	<table border="1"><thead><tr><th>x</th><th>y</th></tr></thead><tbody><tr><td></td><td></td></tr><tr><td></td><td></td></tr><tr><td></td><td></td></tr></tbody></table>	x	y							Slope Triangle
x	y									
y-intercept	Observations	Equation								

Function #3

Graph 	<table border="1"><thead><tr><th data-bbox="639 237 808 308">x</th><th data-bbox="808 237 980 308">y</th></tr></thead><tbody><tr><td data-bbox="639 308 808 422"></td><td data-bbox="808 308 980 422"></td></tr><tr><td data-bbox="639 422 808 535"></td><td data-bbox="808 422 980 535"></td></tr><tr><td data-bbox="639 535 808 648"></td><td data-bbox="808 535 980 648"></td></tr></tbody></table>	x	y							Slope Triangle
x	y									
y-intercept	Observations	Equation								

Function #4

Graph 	<table border="1"><thead><tr><th data-bbox="639 1129 808 1201">x</th><th data-bbox="808 1129 980 1201">y</th></tr></thead><tbody><tr><td data-bbox="639 1201 808 1314"></td><td data-bbox="808 1201 980 1314"></td></tr><tr><td data-bbox="639 1314 808 1428"></td><td data-bbox="808 1314 980 1428"></td></tr><tr><td data-bbox="639 1428 808 1541"></td><td data-bbox="808 1428 980 1541"></td></tr></tbody></table>	x	y							Slope Triangle
x	y									
y-intercept	Observations	Equation								

