


# GeoGebra<sup>4</sup>

## Creating Random Exercises

### 1 Buttons & Input Boxes

#### 1.1 Button for Random Functions

The following button creates a new quadratic function each time it is pressed.

	Insert button in graphics view
Caption	New Function
GeoGebra Script	$f(x) = \text{RandomBetween}[-3, 3] x^2 + \text{RandomBetween}[-3, 3] x + \text{RandomBetween}[-3, 3]$


#### 1.2 Input Box for Changing an Equation

The following input text box lets you change the equation of a function in the graphics window.

Input: <input type="text"/>	$f(x) = x^2 + 2x - 3$
$a = $ <input type="text"/>	Create Input Box in graphics view
Caption	$f(x) =$
Linked Object	Choose $f(x)$




#### 1.3 Button for Random Circles with Random Colors

The following button creates a random circle with random color.

	Insert button
Caption	New Circle
GeoGebra Script	$\text{MyCircle} = \text{Circle}[(\text{RandomBetween}[-4, 4], \text{RandomBetween}[-4, 4]), \text{RandomBetween}[1, 3] ]$ $\text{SetDynamicColor}[\text{MyCircle}, \text{random}(), \text{random}(), \text{random}() ]$

## 2 Exercise for Equations of Linear Graphs

The following construction allows students to practice finding the equation of a linear graphs.

	Insert button in graphics view
Caption	New Function
GeoGebra Script	$f(x) = \text{RandomBetween}[-5, 5]/\text{RandomBetween}[1,5] x + \text{RandomBetween}[-4, 4]$
	Create a first linear equation $f(x)$ by clicking the button in Move mode. Now change the color of $f(x)$ to green.
Input: 	$g(x) = 1/2x$
	Change the color of $g(x)$ to red
$a = $ 	Create Input Box in graphics view
Caption	$f(x) =$
Linked Object	Choose $g(x)$ Note: $g(x)$ is now connected to the equation entered by the students while $f(x)$ is the randomly created given graph.
ABC	Insert text "Great!"
	Right click on the text "Great!", choose "Object Properties" In the "Advanced" tab set "Condition to show object" to $f == g$ Note: this shows the text only when the student answer is correct
	Right click on the red line $g(x)$ and choose the "Advanced" tab In the "Advanced" tab set "Condition to show object" to $f != g$ Note: this shows the student answer (red) only when it is incorrect
	Hide the algebra view to make sure students cannot see the solution Choose "File", "Export", "Dynamic Worksheet as HTML" to create a web page worksheet with student instructions

Students can now use this worksheet by clicking the "New Function" button and entering their equation solution into the input box. After pressing Enter, they will either see "Great" or their incorrect solution displayed as a red line.

## 3 More Information

### 3.1 Scripting

<http://wiki.geogebra.org/en/Scripting>

### 3.2 GeoGebra 4 Release Notes

[http://www.geogebra.org/en/wiki/index.php/Release\\_Notes\\_GeoGebra\\_4.0](http://www.geogebra.org/en/wiki/index.php/Release_Notes_GeoGebra_4.0)