

# LINE.8XP

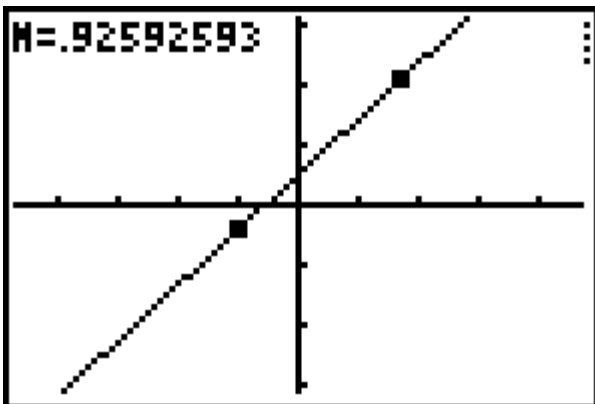
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Here's the demonstration program that I use in conference presentations about calculator programming ("The Power in the Palm of Your Hand").

The motivation for this program comes from the fact that the calculator's built-in `Line()` drawing command only draws a line segment. This program will draw a line from edge to edge of the screen through any two points selected by the user on the graph screen. Note that the indentations are just for clarity and the *italic* notes on the right are not part of the program. And remember, the emphasis here is on the use of **Algebra** to help solve the graphical problem!

<code>:ClrDraw</code>	<i>clears the graph screen</i>
<code>:Input</code>	<i>move the cursor to the first point</i>
<code>:X→A</code>	<i>save these coordinates</i>
<code>:Y→B</code>	
<code>:Circle(A,B,ΔX)</code>	<i>draw a small circle here</i>
<code>:Input</code>	<i>move the cursor to the second point</i>
<code>:X→C</code>	<i>save these coordinates, too</i>
<code>:Y→D</code>	
<code>:Circle(C,D,ΔX)</code>	<i>draw a small circle here, too</i>
<code>:If C=A</code>	<i>if the line is vertical...</i>
<code>:Then</code>	
<code>:Vertical A</code>	<i>draw a vertical line</i>
<code>:Text(0,0,"M=UNDEFINED")</code>	<i>display its slope</i>
<code>:Else</code>	
<code>:(D-B)/(C-A)→M</code>	<i>compute slope of the line</i>
<code>:M(Xmin-A)+B→E</code>	<i>equation of the line evaluated at</i>
<code>:M(Xmax-A)+B→F</code>	<i>edges of the screen</i>
<code>:Line(Xmin,E,Xmax,F)</code>	<i>draw a line across the screen</i>
<code>:Text(0,0,"M=",M)</code>	<i>display the slope in the upper left</i>
<code>:End</code>	<i>end of the if-then-else- block</i>



Where to find the commands:

`ClrDraw`, `Circle`, `Vertical`,  
`Line`, and `Text` are on the  
[DRAW] menu

`Input` is on the PRGM I/O menu

`If`, `Then`, `Else`, and `End` are on the  
PRGM CTL menu

`=` is on the [TEST] menu

`Xmin`, `Xmax`, and `ΔX` are on the  
[VARS] Window... menu