Using Trace and Zoom Integer with Several Graphs MathPrint

Objectives:

- Use TRACE to move along a given graph and identify ordered pairs
- Move the cursor among different functions
- Use Zoom Integer to identify integer ordered pairs on a graph

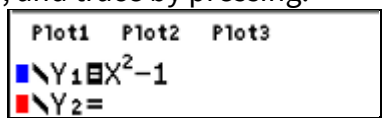
Use TRACE to move along a given graph and identify ordered pairs

KEY POINT: When using 

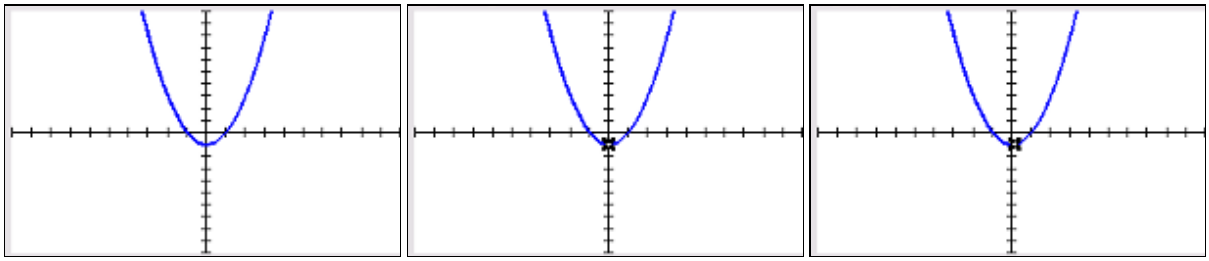
,  , and  , the cursor moves along the graph and shows coordinates of ordered pairs on the graph.

Example 1: Graph $y_1 = x^2 - 1$ in a standard window. Then use TRACE to observe ordered pairs.

Input the function , graph, and trace by pressing: 

See: 

then



PRO TIP: Get comfortable with the left and right directional arrows.

Repeatedly press  and then  to move along the graph, observing the coordinates of the ordered pairs at the bottom of the screen.

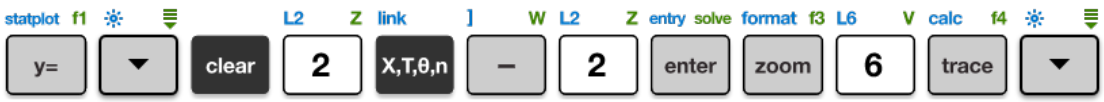
NOTICE: The equation being graphed is displayed in the upper left corner!

Move the cursor among different functions

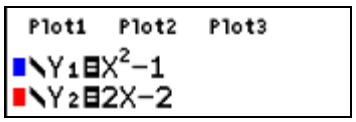
KEY POINT: When using 

,  , and  , the cursor moves among equations in the Y= menu.

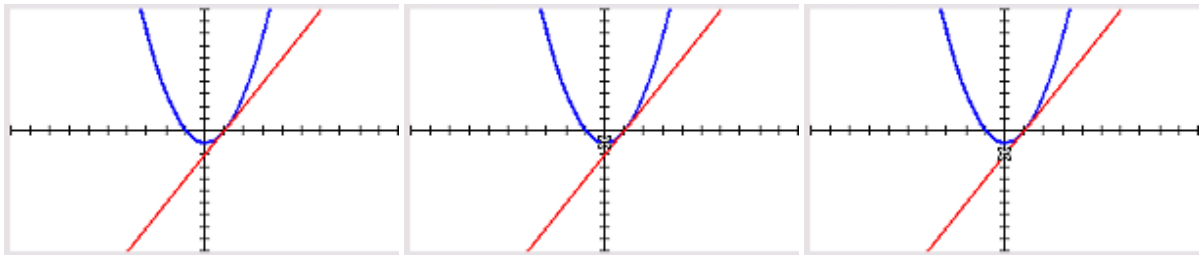
Example 2: Add $y_2 = 2x - 2$ to the graph from Example 1, then use  and  to trace both it and $y_1 = x^2 - 1$.

Press 

and see:



NOTICE: The equation being graphed changes from y_1 to y_2!

See: 

PRO TIP: Get comfortable with all four directional arrows. Repeatedly press ▼ or ▲ to move among functions and press ▶ and ◀ to trace along a function.

BUMMER: When using TRACE, the ordered pairs are usually nasty decimals related to the pixel size and resolution of the calculator screen.

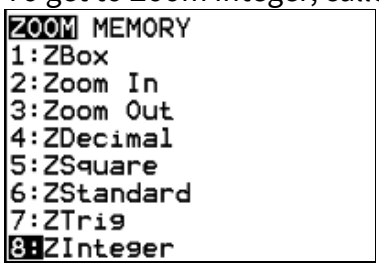
Use Zoom Integer to identify integer ordered pairs on a graph

KEY POINTS: Zoom Integer takes <u>three</u> keys to activate, then forces TRACE to choose integer values of x.

Example 3: Use Zoom Integer (ZInteger) and TRACE to complete the given table for the functions in the previous examples.

x	y_1	y_2
-1		
0		
2		

To get to Zoom Integer, called "ZInteger" press format f3 zoom and ▼ 7 times:



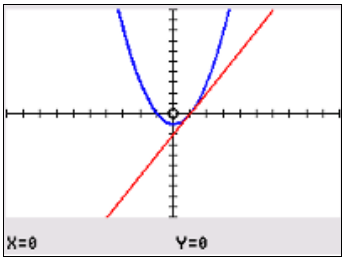
PRO TIP: Save keystrokes by pressing format f3 zoom then v P 8.

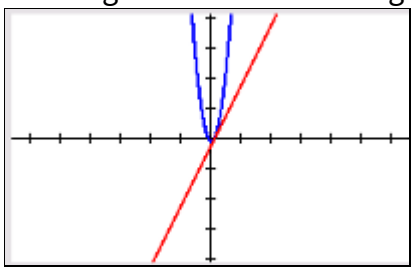
IMPORTANT: The calculator is waiting for the new center of the graph. Press directional arrows to move the cursor to the origin, then press entry solve enter to select the origin.

WEIRD BUT IMPORTANT: It redraws the graph with a very different window!

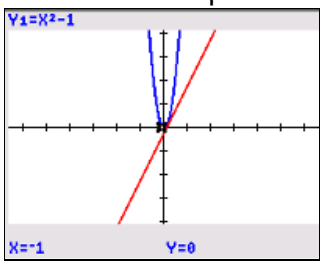
Now press calc f4 trace and ▼ or ▲ to move among functions and ▶ or ◀ to trace a function.

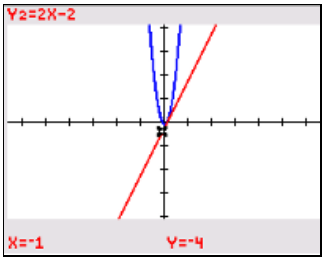
NOTICE: The x- and y-coordinates at the bottom of the screen are always integers!

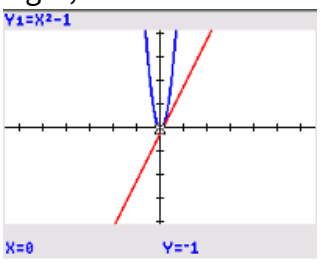
After pressing Zoom 8 and moving the cursor to the origin, see: 

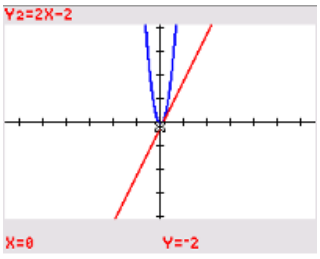
After pressing enter, see: 

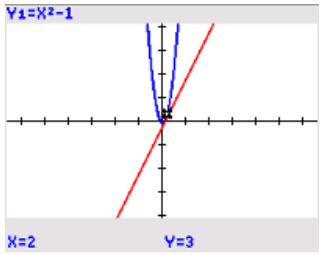
Press calc f4 trace. Then press ◀ or ▶ to move left or right, and ▼ or ▲ to switch functions.

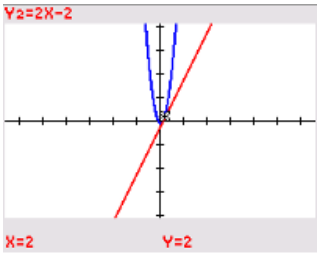
See 



and 



and 



Answer:

x	y_1	y_2
-1	0	-4
0	-1	-2
2	3	2

CURIOUS ABOUT THIS WINDOW? Press tblset f2 window and ▼ 7 times to see:

```
WINDOW
 Xmin=-66
 Xmax=66
 Xscl=10
 Ymin=-41
 Ymax=41
 Yscl=10
 Xres=1
 ΔX=0.5
 TraceStep=1
```

It's trace step = 1 that makes the cursor move one whole unit each time.