

Finding real solutions for equations with the TI-85/TI-86

Method of Intersection:

Starting from the Home screen(command line).

1. Enter graphics mode.
Press **GRAPH**.
2. Enter function editor.
Press **F1:Y(x)**.
3. Erase or unselect any existing functions.
If any other functions are entered:
Either press **F4:DELf** repeatedly until they are all erased,
or for each function, put the cursor on the function and if the "=" is reversed(white on black), press **F5:SELCT** so that the function won't graph but is still in the calculator.
4. Enter the right and left hand sides of the equation.
If no other functions are entered, set y1 equal to the right hand side of the equation and y2 equal to the left hand side.
But if there are already functions entered that you want to keep, move the cursor down until you get a blank function. Type in the right hand side of the equation and press **ENTER**. Then enter the left hand side into the next function. Take note of the functions' numbers.
5. Return to the graph screen with a standard viewing window if no window information is given. If you are given a window or interval in which to find the solution, skip to step 8.
Press **EXIT F3:ZOOM F4:ZSTD**.
6. Wait for the graphs to draw.
7. Make sure at least one intersection is showing.
If not, zoom out until one is seen.
Press **F3:ZOOM F3:ZOUT ENTER**.
Wait for the graphs to redraw.
If you still don't see an intersection, press **ENTER** again and go back to previous step.
Press **EXIT**.
8. Enter the math submenu.
Press **MORE F1:MATH**.
9. Find the intersection.
TI-85 | Press **MORE F5:ISECT**.
TI-86 | Press **MORE F3:ISECT**.
Move the cursor close to the intersection..
Verify the number in the top right corner is one of the functions' numbers (i.e. 1 for y1.)
If it is press **ENTER** to select it.
If not, press either (**cursor up**) or (**cursor down**) until it is one of the functions' numbers.
Verify the number in the top right corner is the other function's number (i.e. 2 for y2.)
If it is press **ENTER** to select it.
If not, press either (**cursor up**) or (**cursor down**) until it is the other function's number.
10. Wait for the calculator to find that intersection.
When done a solution to the equation will appear at the bottom of the screen as the value of x.
11. Press **EXIT** to bring back the math submenu.
12. If there are other solutions,
TI-85 | Press **F5:ISECT** and go back to "Move the cursor close to the intersection" in step 9.
TI-86 | Press **F1:MATH** and go back to step 9.

You may have to zoom out again to find other intersections.