Solving Linear Equations Using a TI-85

Before you begin, clear all previously saved functions and set the viewing window.

To Clear Previously Saved Functions

Graph
F1 Y=
F4 DelF

To Set Graph Scale

Graph
F3: Zoom
F4: ZStd
F3: Zoom
More
F2: ZSqr

Solve: $4(x-3)-x=x-6$

Algebraically:

$$4(x-3)-x=x-6$$
$$4x-12-x=x-6$$
$$3x-12=x-6$$
$$2x=6$$
$$x=3$$

There are two ways to solve a linear equation graphically: Using Root and Using Intersection

Graphically: Using Zero (Root)

Rewrite the equation with 0 on one side.

$$4(x-3)-x-x+6=0$$

Let Y1 equal the left side of the equation.

Graph
F1: Y=

$$Y1=4(x-3)-x-x+6$$

Then graph.

Graph
F5 Graph

Find the x-intercept (zero)

More

F1: Math
F3: Root
Enter

At the bottom of the screen, it shows the x and y coordinate of the x intercept. (3, 0)

x=3 is the solution to the equation.

Graphically: Using Intersection

Each side of the equation represents a linear expression. If both sides of the equation are graphed, their point of intersection has the same y value. Therefore, the x-coordinate of the point of intersection represents the solution to the equation.

Graph both linear expressions:

Graph
F1: Y=
(Clear functions)
$Y1 = 4(x - 3) - x$
$Y2 = x - 6$
Graph
F5 Graph

To find the point of intersection:

More
F1: Math
More
F5: Isect
The number 1 for the first equation appears in the upper right hand corner
Enter
The number 2 for the second equation appears in the upper right hand corner
Enter

At the bottom of the screen, it shows the x and y coordinate of the point of intersection. (3, -3)

x=3 is the solution to the equation.