

LINEAR FUNCTIONS

“BUSTING BARRIERS” WITH THE ALGEBRA FX 2.0

The ALGEBRA menu on the FX2.0 can be used to solve linear equations in a single variable.

- x From the MAIN MENU, highlight “Algebra” and press **EXE** .
- x Press **F1** for the TRNS menu.
- x Press the appropriate number for “Solve.”
- x Type in the equation you desire and press **EXE** . For example, suppose you wish to solve the equation $2(x + 3) - 5(4x + 7) = 4(2x - 8)$. Simply display on the top line the following: solve $(2(x + 3) - 5(4x + 7) = 4(2x - 8))$. When you press **EXE** , the calculator displays $x = \frac{3}{26}$.

The “Algebra” menu can also be used to help students solve equations and inequalities in two variables for y or any other variable.

- x From the MAIN MENU, highlight “Algebra” and press **EXE** .
- x Press **F1** for the TRNS menu.
- x Press the appropriate number for “Solve.”
- x Type in the equation or inequality you wish to solve, a comma, the variable you wish to solve for, close the parentheses, and press **EXE** . To obtain a greater than or less than sign while typing, press the appropriate function key for “EQUATION,” the number for “INEQUALITIES,” and the number of the desired sign. The top of the screen might look like this:

solve $(4X + 6Y = 200, Y)$. The calculator returns $y = \frac{2(-x + 50)}{3}$.

Using the Tutorial Menu

In addition to solving equations, the FX 2.0 can also assist students in learning the process for themselves. From the MAIN MENU, access the “Tutorial” menu and follow the steps below. This shows an example with two variables, but equations in one variable can also be solved using the same technique.

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- x To clear other entries, press the function key for “Clear,” the number for “ALL EQUATIONS,” and $\boxed{\text{EXE}}$ for yes.
- x At the cursor, type in the equation you want to work on and press $\boxed{\text{EXE}}$. For example you might type $4X + 6Y = 200$. This equation is labeled as equation 1.
- x Suppose we wanted to solve this equation for Y . All we need do to begin is simply tell the calculator to subtract $4X$. The calculator assumes you are referring to the equation in its memory. Type in “minus $4x$ ” in symbols and press $\boxed{\text{EXE}}$. This becomes equation 2, and should appear as
$$4x + 6Y - 4X = 200 - 4X .$$
- x To simplify equation 2, press $\boxed{\text{F1}}$ for the TRNS menu, the number for simplify, and $\boxed{\text{EXE}}$. The result has isolated $6Y$, showing us that $6Y = -4X + 200$. This is labeled as equation 3.
- x The next step, of course, is to divide by 6. Simply press the division sign, 6 and $\boxed{\text{EXE}}$. The calculator shows $\frac{6Y}{6} = \frac{-4X + 200}{6}$.
- x This needs to be simplified, so again press $\boxed{\text{F1}}$ for the TRNS menu, the number for simplify, and $\boxed{\text{EXE}}$. The calculator shows that $Y = \frac{-2X}{3} + \frac{100}{3}$, using true fraction notation.

One of the many exciting features of the calculator is that it does whatever it is told to do, even if it does not help solve the problem. If the student tells the calculator to, say, multiply by 6 instead of divide by 6, the calculator does it, but the student can recognize that it does not help. The student can then return to the previous step and try something else.

This TUTORIAL can be a very effective tool in helping students master the skills they need to solve equations and inequalities. By “busting this barrier” that impedes the progress of so many students, the ALGEBRA FX 2.0 can then allow the study of higher order and, perhaps, more significant mathematics.