

SUCCESS WITH MATH™

Linear Equations User's Manual

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Setting up your Computer

For Disk:

1. Following manufacturer's instructions, hook up your computer and disk drive to a monitor or TV.
2. Insert the program disk into the disk drive and close the drive door.
3. Turn your computer and monitor on.
4. Turn down the volume on your monitor.
5. If your disk drive does not automatically boot disks, follow manufacturer's instructions for booting the disk.

For Cassette:

1. Following manufacturer's instructions, hook up your computer and program recorder to a monitor or TV.
2. Insert the program cassette into the program recorder following cassette label instructions.
3. Turn your computer and monitor on.
4. Turn down the volume on your monitor.
5. Load the program into the computer following manufacturer's instructions.

Program Objective

This SUCCESS WITH MATH™ program provides comprehensive drill and practice in solving linear equations utilizing the required algebraic principles in addition to the four basic mathematical operations. Once the program has been loaded into the computer, the program itself will take over and instruct the user on how to proceed.

Program Description

All equations in the program are randomly generated in the form

$$AX + B = C$$

where A, B, and C are integers. For each equation, the user must solve for X using the following menu of rules:

- 1) ADD SAME TERM TO BOTH SIDES**
- 2) SUBTRACT SAME TERM FROM BOTH SIDES**
- 3) MULTIPLY BOTH SIDES BY SAME TERM**
- 4) DIVIDE BOTH SIDES BY SAME TERM**
- 5) SIMPLIFY BOTH SIDES**

The proper sequence of operations used in the solving of all linear equations is a) undo addition or subtraction, b) simplify the equation if possible; c) undo multiplication or division, d) simplify if possible. So for the following example

$$2X + 5 = -3$$

the user would enter either rule 1 or rule 2 to remove the 5 from the equation. After a rule is selected, the user must then provide the necessary information to complete that step. If rule 2 is selected, the user would then be asked the term to be subtracted from both sides. If the user enters the correct term (in this case 5) the equation would then read like this:

$$2X + 5 - 5 = -3 - 5$$

The program would then return to the rule menu and the user would have to select rule 5 to simplify the equation. The user would then be asked to enter the new left side of the equation (2X) and the new right side of the equation (-8) so that the updated equation reads:

$$2X = -8$$

This step-by-step procedure continues until the equation is solved:

Original equation $2X + 5 = -3$

Updated equation $2X = -8$

*User picks correct rule
from menu (3 or 4)*

*User divides both sides
by same term (2)*

Updated equation $(2X)/(2) = (-8)/(2)$

*User picks correct rule
from menu (5)*

*User simplifies left side
(X) and right side (-4)*

Updated equation (solution) $X = -4$

The program accepts $1X$ and X as being interchangeable although the numeral 1 will be dropped when printed on the screen.

All errors are immediately called out *and explained*. The user may then try a new answer. Errors are divided into two categories: procedural and computational. A procedural error consists of the improper use of one of the five rules. A computational error is a mistake in calculation. The program tracks type and number of errors made and displays the totals on the screen after the solution is reached.

It is important to note that the user must enter the correct answer for each step before the program will continue on to the next step in the solving process. *The user always succeeds in solving the equation and knows exactly where errors have been made.*

Other programs in the Success With Math™ series from CBS Software:

Addition and Subtraction—Grade Levels 1 to 4

Multiplication and Division—Grade Levels 2 to 8

Quadratic Equations—Grade Levels 9 to 12

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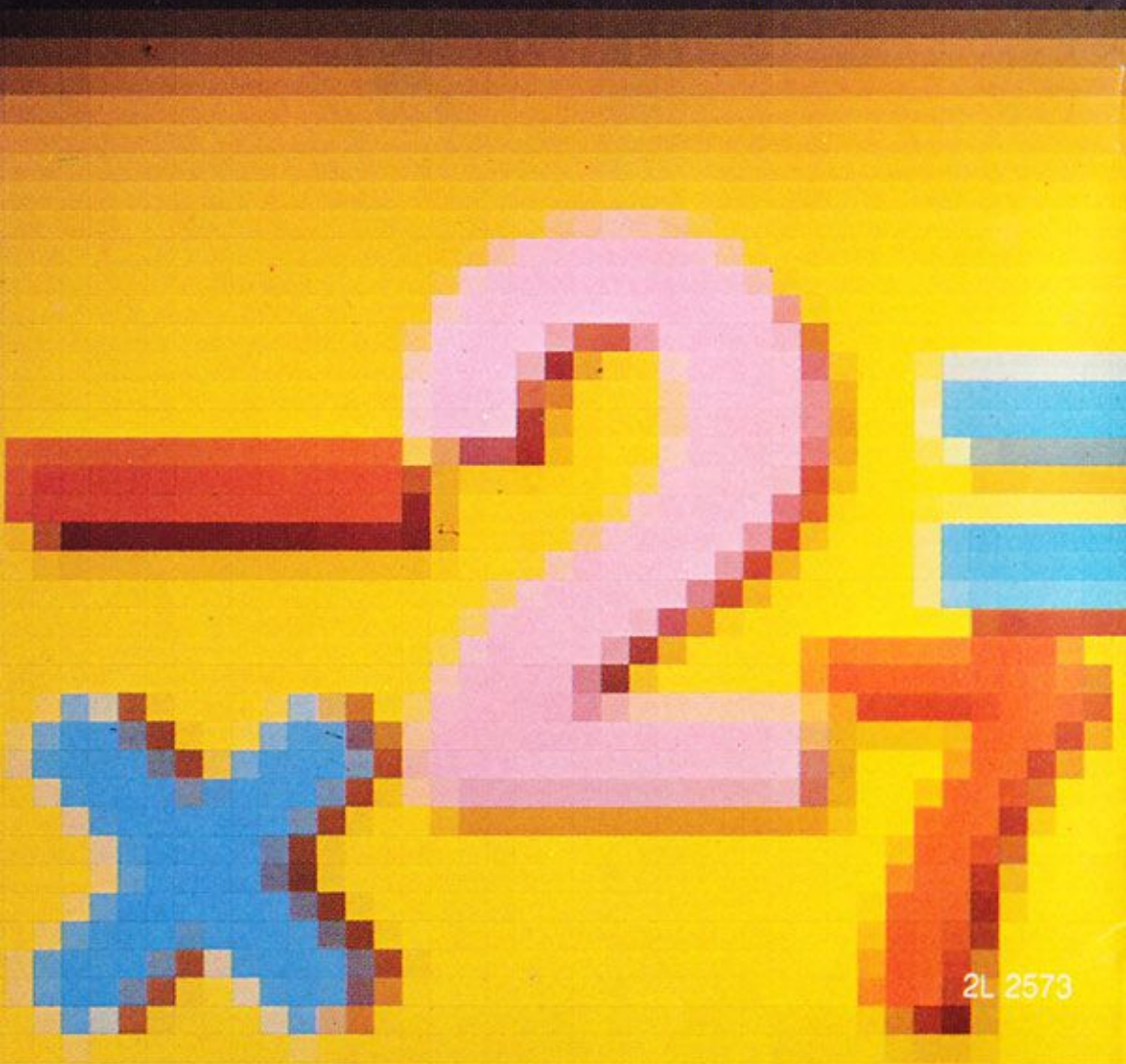
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