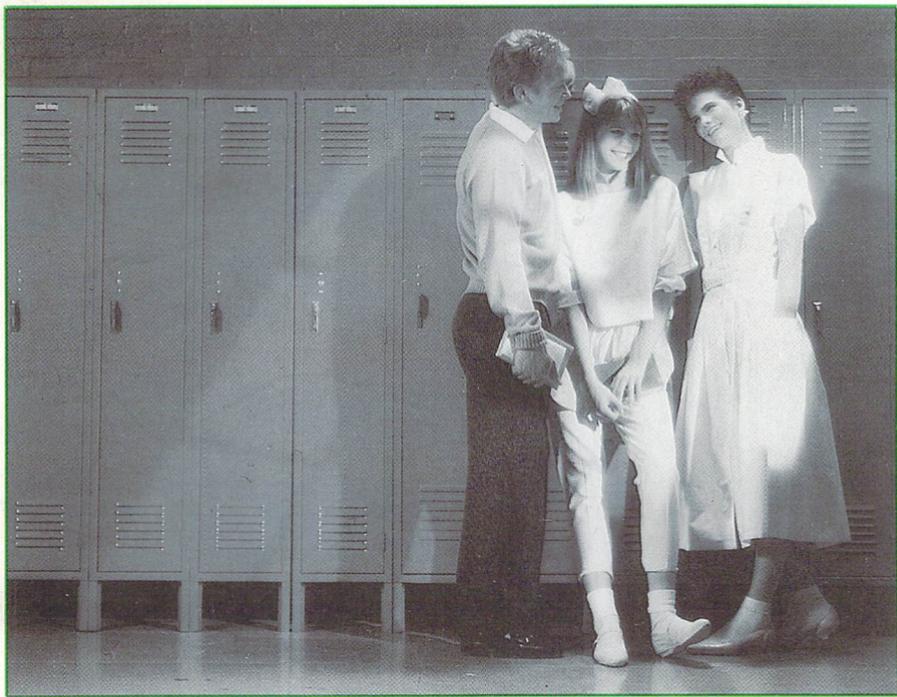


**HOMEWORK
HELPER™**

MATH **WORD
PROBLEMS**



SPINNAKER™
We make learning fun.

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WHAT IS HOMEWORK HELPER MATH?

HOMEWORK HELPER MATH provides students with a tool for understanding and solving word problems. It teaches you the “how-to” of translating English sentences into mathematical equations, and techniques for getting correct answers! It helps you solve your own homework problems.

HOMEWORK HELPER MATH consists of a **Learn Word Problem Concepts** section, and a **Solve Your Own Word Problems** section for each of the basic categories of word problems.

The **Learn Word Problem Concepts** section teaches through a step-by-step method, and then assists you in using the steps to solve practice problems with as much help provided as you require. **Solving Your Own Word Problems** becomes easy when you use the techniques and strategies you have just learned.

A special feature of HOMEWORK HELPER MATH is the **Algebra Calculator** which you can use for both the practice problems and your own homework problems. The **Algebra Calculator** solves your equation and explains the solution. If you have a printer, you can make a copy of your work.

Every screen is conveniently labeled at the top with a graphic and heading to let you know where you are in the program. At the bottom of the screen, there are instructions explaining the special function keys.

Loading Instructions

Apple

1. Before loading, be sure the computer is turned off.
2. Insert the HOMEWORK HELPER MATH disk into the disk drive and close the disk drive door.
3. Turn on the TV or monitor and the computer.
4. The title screen appears briefly, and then you are asked to type your name.
5. Press RETURN to view the HOMEWORK HELPER MATH Main Menu.

Commodore

1. Turn on the disk drive.
2. Turn on the monitor or TV.
3. Commodore 64: turn on the computer.
Commodore 128: depress key in lower left of the keyboard and turn on the computer.
4. Insert the HOMEWORK HELPER MATH disk into the disk drive.
5. Type: **LOAD "SPIN",8** and press RETURN.
6. When the word READY appears, type: **RUN** and press RETURN.
7. The title screen appears briefly, you are asked to type your name, and then you are ready to use HOMEWORK HELPER MATH.
8. Press RETURN to view the HOMEWORK HELPER MATH Main Menu.

IBM

1. Insert the DOS disk in the disk drive and close the disk drive door.
2. Turn on the computer and monitor, or if the computer is already on, press **Ctrl** **Alt** **Del** keys simultaneously.
3. Follow the instructions that appear on the screen until you see an A>.

-
4. Remove the DOS disk from the drive and put the HOMEWORK HELPER MATH Program Disk A into the drive and close the disk drive door.
 5. Type **RUN** and press the  key.
 6. The program will load and the title screen will appear briefly.
 7. Press RETURN to view the HOMEWORK HELPER MATH Main Menu.
-

If the title screen and the menu screen do not appear, check the following:

1. Are your peripherals connected properly and turned on?
 2. Is your disk drive door closed?
 3. Is your HOMEWORK HELPER MATH disk inserted properly? The label should face up for loading.
-

Trouble-Shooting Tips

Printer Compatibility

Apple Scribe
Epson
Imagewriter
Okidata

Apple

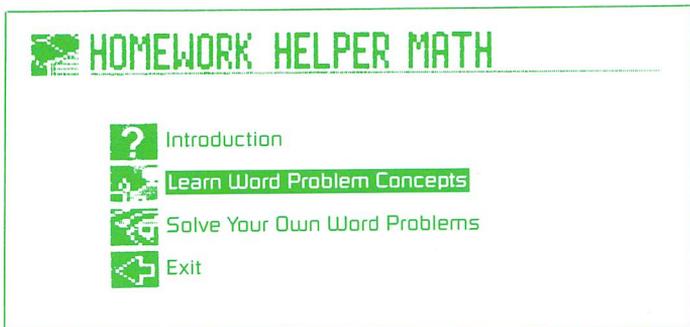
Commodore 1525, MPS 801/802/803
Epson
Okidata

Commodore

Epson
IBM
NEC
Okidata

IBM

Main Menu Screen



Menu Options

Introduction	The introduction to HOMEWORK HELPER MATH explains how to use the program.
Learn Word Problem Concepts	This section presents all of the concepts in a given word problem and explains them in small, understandable steps. Each category of word problems has its own set of instructions and practice problems. The program “coaches” you in translating word problems into mathematical equations using the special features described on page 5.
Solve Your Own Word Problems	This section gives you a brief summary of the steps to solving your homework problems. The Work Grid is available to assist you in developing an equation. Once you have entered your equation you can use the Algebra Calculator to find the solution.
Exit	This command will take you out of the HOMEWORK HELPER MATH program.

Special Features

Work Grid

The **Work Grid** provides you with a structure to help you organize the important pieces of information found in each word problem. HOMEWORK HELPER MATH automatically labels both the vertical and horizontal columns of the grid (see illustration). Prompts assist you in finding the relevant information within the word problem, and then entering it on the **Work Grid**.

	Nickels	Dimes	Total
Price/Unit			
# of Coins			
Value			

The practice problems are of varying **levels of difficulty**, allowing increasing challenge to your word problem analysis skills. The first level of practice problems is the least difficult and has a greater number of helpful prompts than the next three levels. You may select problems with a particular degree of difficulty.

Levels of Difficulty

Two levels of **Help** are provided by the HOMEWORK HELPER MATH program whenever you need to enter information. The first level is a hint about how to find the information in the word problem. The second level contains the correct information highlighted by single quotation marks, and an explanation.

Help

There is often more than one correct answer to a question. Help will suggest one of these, but the program will accept any mathematical equivalent.

The HOMEWORK HELPER MATH **Algebra Calculator** can be used to solve the mathematical equation and display the answer. You may also choose to display or print the steps.

Algebra Calculator

Learn Word Problem Concepts Keys

Commands	Apple IIe, IIc	Apple II+	Commodore	IBM
Help	Ctrl-Q	Ctrl-Q	F1	F1
Calculator	Ctrl-C	Ctrl-C	F3	F3
Skip Problem	Tab	Ctrl-I	F5	F5
Escape	Esc.	Esc.	Ctrl-E	Esc.
Left and Right	← →	Ctrl-S (left) Ctrl-D (right)	CRSR ↔	Arrow Keys
Delete Previous Character	Del	←	Del	Backspace Arrow
Delete to End of Line	Ctrl-Z	Ctrl-Z	Ctrl-Z	End

Solve Your Own Word Problem Keys

Commands	Apple IIe, IIc	Apple II+	Commodore	IBM
Calculator	Ctrl-C	Ctrl-C	F3	F3
Escape	Esc.	Esc.	Ctrl-E	Esc.
Left and Right	Arrow Keys	Ctrl-S (left) Ctrl-D (right)	CRSR ↔	Arrow Keys
Up and Down	Arrow Keys	Ctrl-E (up) Ctrl-X (down)	↕ CRSR	Arrow Keys
Delete Previous Character	Del	←	Del	←
Window Left	Ctrl-U	Ctrl-U	F7	F7
Window Right	Ctrl-I or Tab Key	Ctrl-I	F8	F8
Delete to End of Line	Ctrl-Z	Ctrl-Z	Ctrl-Z	End

Algebra Calculator Keys

Commands	Apple IIe, IIc, II+	Commodore	IBM
Help	Ctrl-Q	F1	F1
Solve	Ctrl-L	F2	F2
Display	Ctrl-O	F4	F4
Print	Ctrl-P	F6	F6
Escape	Esc.	Ctrl-E	Esc.
Delete to End of Line	Ctrl-Z	Ctrl-Z	End

How to Enter and Change Information

All **command keys** are machine specific and are listed in this guide on pages 6–7 as well as in your HOMEWORK HELPER MATH program.

Entering

- Enter expressions (any mathematical term) in terms of the units that are being used in the word problem. For example, if the problem asks to represent the value of a nickel in cents, enter 5, not .05. To enter .05 would mean that you are expressing the value of a nickel in terms of dollars.
 - Use the following keys to indicate the mathematical functions:
 - * multiplication
 - / division
 - + addition
 - subtraction
 - Press the RETURN key to enter the information.
-

Plugging In

Plug in the value of the variable when you have solved your equation. For example, you have previously entered the expression $(X + 4)$ on the grid. When you find the value of the variable ($X = 7$), enter that value (7). You will overwrite the expression $(X + 4)$ with its value (11).

Correcting

Change an incorrect expression on the Work Grid by using the keys for cursor movement and deletion of a character.

How to Get Help

Press the **Help** key indicated at the bottom of the screen. Refer to pages 6–7 in the USING THE KEYBOARD section of this guide to find the specific key for your computer.

Seven Stages of Problem Solving

Word problems are descriptions of situations that are best solved through algebraic symbols and formulas. There are seven stages in solving word problems which are indicated in the program on the screen below the Work Grid.

- 1. READ:** Read the problem slowly and carefully. Think about the problem. What are the facts? What is being asked? Does it make sense to you?
- 2. PLAN:** Make a Plan.
 - a. Draw a diagram on a piece of paper that shows what is happening.
 - b. Sketch an equation using general terms that relates the facts to what is being asked.
 - c. Create a chart by entering labels that will help you solve the problem.
- 3. DATA ENTRY:** Translate the problem by entering expressions into the grid.
 - a. Fill in the units of measure.
 - b. Enter the facts from the problem.
 - c. Use a variable to represent the unknown.
- 4. PARTS:** Figure the value of each part of the problem—the value of the nickels in a coin problem; the value of the coffee, purchased at \$2.10 per pound, in a mixture problem; or the distance the green car travelled in a distance problem. Write an expression that represents the total value of each column in the grid.
- 5. WHOLE:** Create the equation by substituting expressions for each of the parts. This equation should show the relation between the data in the Work Grid and the original problem.

6. COMPUTE: Solve the equation for the variable. You have several choices.
- Use our Calculator and see the steps in the solution.
 - Solve the equation yourself with paper and pencil.
 - Skip to the next problem if you wish to work only on translating English into an equation.
7. CHECK: Reread the problem. Make sure you have answered the question, or questions. Use the Work Grid to check your work.
-

Levels of Difficulty

HOMEWORK HELPER MATH provides practice in the different categories of word problems. Each category has problems at three levels of difficulty—easy, average, and hard. Tutorials and brief reviews accompany the “easy” problems, and whenever a new type of problem is introduced. The tutorials are intended to assist you in using our methods to solve word problems. They are **not** intended to replace your teacher, or to completely cover the subject matter.

Progress at your own speed through the categories. If problems seem easy, skip to the next level. If you finish problems at one level and they seemed difficult, try a different category at the same level. At times, the program may suggest that you try harder, or easier, problems. These are only suggestions. If you want to stay where you are, just ignore the suggestion.

In HOMEWORK HELPER MATH we have tried to provide representative problems, and a general manner of solution. You should try to see the common strategy in the Work Grid approach, so that you may extend it to other categories of problems. We think that this approach shows you a way to break up a complex task into meaningful parts.

-
- Keep paper and pencil handy. The computer provides a grid for entering information, but you should get used to drawing diagrams and testing ideas with a pencil and paper.
 - If you are not sure of what to enter onto the grid, try out your best guess. There is no penalty for a wrong answer. And you can try something else if it does not work out.

Miscellaneous Tips

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To see credits, press **C** during the title screen
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