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It should be noted that most of the pages are identifiable as having been processed by me.

I put a lot of time into producing these files which is why you are met with this page when you open the file.

In order to generate this file, I need to scan the pages, split the double pages and remove any edge marks such as punch holes, clean up the pages, set the relevant pages to be all the same size and alignment. I then run Omnipage (OCR) to generate the searchable text and then generate the pdf file.

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It is my hope that you find the file of use to you personally – I know that I would have liked to have found some of these files years ago – they would have saved me a lot of time !

Colin Hinson

In the village of Blunham, Bedfordshire.



Diskette Software

Model PHD 503

Speak & Math™ Program

Four activities, plus a game, provide hours of educational entertainment.

■ SOLVE IT and MIX IT — Provide practice in the four basic mathematical operations.

■ GREATER/LESS — Presents two numbers or problems and asks your child to put the correct symbol between them.

■ WRITE IT — Speaks a number and prompts your child to type the numbers in the correct order.

■ NUMBER STUMPER — Challenges your child to guess the mystery number.

Designed to use with the TI-99/4 Home Computer, the 5 Disk Memory System, 1 Disk Drive, 500/512K and 1 Disk Memory Drive, the TI Solid State Speech Synthesizer, and the TI Terminal Emulator. Solid State Software Command Module (all sold separately).

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Instruments Incorporated

Author: Texas Instruments

Language: TI BASIC

Hardware: TI Personal Computer
Disk Controller and Drive or cassette tape recorder
Solid State SpeechTM Synthesizer
Terminal Emulator II Solid State SoftwareTM
Command Module

Media: Diskette and Cassette

With the Speak & MathTM package, your computer provides the same practice in addition, subtraction, multiplication, division, number relationship, and problem-solving that is available with the Speak & MathTM handheld learning aid.

While providing enjoyable reinforcement for mathematical skills, the Speak & Math package also involves your child's senses of sight, hearing, and touch. With the Texas Instruments Speech Synthesizer* in place and the Terminal Emulator II Command Module* inserted in the console, the Speak & Math package utilizes the innovative allophone speech technology called "text-to-speech." This text-to-speech system speaks words, numbers, and phrases of praise and encouragement with humanlike voice quality.

The four activities in the Math Talk program and the Number Stumper program encourage your child to increase his or her speech and accuracy in solving math problems. Both programs are designed to provide enjoyable reinforcement for mathematical concepts and hours of educational entertainment.

As well as strengthening your child's mathematics skills, working with the computer can help him or her become familiar with computers and their operation. Since computer-enhanced instruction is more common in the classroom every year, this knowledge and experience gives your child an important advantage.

*sold separately

The Math Talk program offers five choices.

- Solve It lets your child select addition, subtraction, multiplication, or division and then speaks and displays drill problems in that operation.
- Mix It provides practice in all four basic skills by randomizing the type of problem that appears on the display.
- Greater / Less presents two numbers or problems and asks your child to correctly place either the greater-than or less-than symbol between the numbers or problems.
- Write It speaks a number and prompts your child to type the digits of that number in the correct sequence.
- TI BASIC stops the Math Talk program and returns to TI BASIC.

STEP 1: Be sure that the Speech Synthesizer unit is connected to the computer and that the Terminal Emulator II Command Module is inserted into the console. Also, be sure that the Disk Memory System or cassette recorder is attached to the computer and turned on. (See the owner's manuals or the User's Reference Guide for product details.)

STEP 2: Press any key to pass the title screen. Then press 1 to select TI BASIC. To load the program from diskette, insert the diskette into Disk Drive 1, type

OLD DSK1.MATHTALK

and press ENTER.

To load the program from a cassette tape, insert the tape into the recorder. Next, refer to the "Loading Cassettes" section in this manual for instructions on determining the program's position on the cassette tape. When you have properly positioned the tape counter on your recorder, type

OLD CS1

and press ENTER. The computer then displays directions for loading the program.

STEP 3: When the cursor reappears, type RUN and press ENTER.

STEP 4: The Math Talk program title screen appears on the display followed automatically by a selection list of five choices.

- 1 SOLVE IT
- 2 MIX IT
- 3 GREATER / LESS
- 4 WRITE IT
- 5 TI BASIC

Certain keys on the computer keyboard work in all activities. To hear a problem again, press REDO. To correct a typing error, press ERASE before pressing ENTER to erase the number or numbers and move the cursor (the red underline) to the beginning of the response line.

Each activity provides three levels of skill difficulty. Level 1 contains the easiest problems and Level 3 has the most difficult problems.

Activities 1, 2, and 4 score the response to the problems in the following manner. If the first response is correct, one point is tallied in the "CORRECT" category. If the first response is incorrect, the computer erases the response and encourages your child to "try again." Answering the problem correctly on the second try scores one point in the "CORRECT" category. If the second try is incorrect, the computer supplies the answer. The answer is then scored in the "INCORRECT" category.

In Activity 3, if the response is correct, one point is tallied in the "CORRECT" category. If the response is incorrect, the computer supplies the correct answer. The answer is then scored in the "INCORRECT" category.

In all activities, the program asks "Do you want to play again?" after the first set of five problems. To solve five more problems on the current level of difficulty, press 1 for "yes." Press 2 for "no" to return to the activity selection list.

When the cursor is on the display, pressing BEGIN returns the program to the activity selection list, and pressing BACK returns the program to the level of difficulty selection list.

Select one of the activities or TI BASIC by typing the corresponding number.

OPTION 1

SOLVE IT

If you select Activity 1, the mathematical operation selection list appears next on the display, offering a choice of four operations:

- 1 ADDITION
- 2 SUBTRACTION
- 3 MULTIPLICATION
- 4 DIVISION

Select the operation by typing the corresponding number.

Next, the display shows the three levels of skill difficulty in this activity. Select the level by pressing the appropriate number key.

The first problem of the activity appears on the display. The computer presents the problems one at a time. Type the answer to the problem and press ENTER. After each set of five problems, the "Do you want to play again?" display appears.

OPTION 2

MIX IT

Press 2 to select Mix It. The program then asks you to select the skill level. Choose the level by pressing the appropriate number key.

Next, the first problem of the activity appears on the display. Five random-operation problems are presented one at a time. Type the answer and press ENTER. After each set of five problems, the "Do you want to play again?" display appears.

OPTION 3

GREATER / LESS

When you select Greater/Less, the computer asks you to select the skill level for this activity. Select the level by pressing the appropriate number key.

Next, the first problem of this activity appears in the display. Each set consists of five problems, presented one at a time. You need to decide if the number on the left side is "greater than" or "less than" the number on the right side. Type either the greater-than symbol, $>$, or the less-than symbol, $<$, and then press ENTER. If you type the wrong symbol, you can correct it by typing the other symbol before pressing ENTER. Note: The problems in Level 1 compare two numbers, while the problems on Levels 2 and 3 compare mathematical problems, as well as numbers.

After each set of problems, the "Do you want to play again?" display appears.

OPTION 4

WRITE IT

In Activity 4, the display first shows the three levels of skill difficulty. Select the level by pressing the appropriate number key.

Next, the first problem of the activity is spoken. Type the number the computer speaks, and then press ENTER. Remember, pressing REDO causes the computer to repeat the problem.

After each set of five problems, the "Do you want to play again?" display appears.

OPTION 5**TI BASIC**

Select TI BASIC to stop the Math Talk program and return to TI BASIC. The message **** DONE **** is displayed. Pressing CLEAR also stops the program.

NUMBER STUMPER**Description**

Number Stumper challenges your child to guess the number the computer selects at random. The level of difficulty on which the game is played determines how many digits the number will have.

STEP 1: Be sure that the Speech Synthesizer unit is connected to the computer and that the Terminal Emulator II Command Module is inserted into the console. Also, be sure that the disk drive or cassette recorder is attached to the computer and turned on. (See the owner's manuals or the User's Reference Guide for product details.)

STEP 2: Press any key to pass the title screen. Then press 1 to select TI BASIC. To load the program from diskette, insert the diskette into Disk Drive 1, type

OLD DSK1.STUMPER

and press ENTER.

To load the program from a cassette tape, insert the tape into the recorder. Next, refer to the "Loading Cassettes" section in this manual for instructions on determining the program's position on the cassette tape. When you have properly positioned the tape counter on your cassette, type

OLD CS1

and press ENTER. The computer then displays directions for loading the program.

STEP 3: When the cursor reappears, type RUN and press ENTER.

STEP 4: The Number Stumper program title screen appears on the display, followed automatically by a selection list of three levels of skill difficulty and TI BASIC.

The level you select determines the number of digits in the mystery number and the number of guesses allowed. Level 1 allows eight guesses for a two-digit number, Level 2 allows 12 guesses for a three-digit number, and Level 3 allows 16 guesses for a four-digit number. TI BASIC stops the Number Stumper activity and returns the computer to TI BASIC. Choose one of the levels or TI BASIC by pressing the appropriate number key.

- STEP 5: After a level is selected, the computer displays the Number Stumper problem. The number of red underlines indicates how many digits are in the mystery number. Guess the number by pressing the number keys. Then press ENTER to have the guess checked. The computer checks the guess and tells you how you did by displaying the results in either CORRECT PLACE or CORRECT NUMBER. CORRECT PLACE indicates how many numbers of the mystery number are correct and in the right place. CORRECT NUMBER indicates how many numbers of the mystery number are correct but not in the right place.

Continue to try to guess the mystery number. If the number is guessed before all of the tries (indicated by the question marks) are used, the computer says "You've got my number!" The computer then tells you the number of tries you needed to guess the mystery number. If the mystery number is not guessed within the maximum number of tries, the computer speaks and displays the number.

To erase a typing error, press ERASE before pressing ENTER. To return to the level and TI BASIC selection list, press BEGIN or BACK.

- STEP 6: After each Number Stumper game, a replay screen appears. If your child wishes to play again on the current level of difficulty, press 1 for "yes." Press 2 for "no" to return to the level selection list.

STEP 7: Select TI BASIC to stop the Number Stumper program and return to TI BASIC. Pressing CLEAR also stops the program.

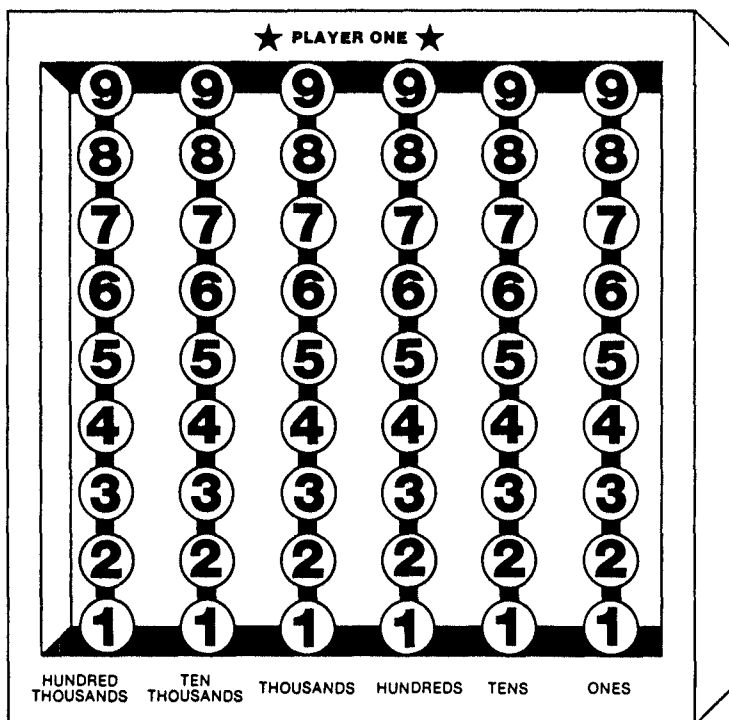
Important keystroke sequences are summarized here to help you and your child use the program.

<u>Press</u>	<u>Action</u>
SHIFT R (REDO)	Repeats the problems in the SOLVE IT, MIX IT, GREATER / LESS, and WRITE IT activities.
SHIFT T (ERASE)	Erases the number or numbers on the response line in the SOLVE IT, MIX IT, WRITE IT, and NUMBER STUMPER activities.
SHIFT W (BEGIN)	Returns the display to the activity selection list.
SHIFT Z (BACK)	Returns the display to the previous selection list.
ENTER	Enters the response to all problems in all activities.
GREATER THAN (SHIFT Y)	Puts the "greater than" symbol, > , in the problem in the GREATER / LESS activity.
LESS THAN (SHIFT H)	Puts the "less than" symbol, < , in the problem in the GREATER / LESS activity.
SHIFT C (CLEAR)	Stops the program.

ABACUS! ABACUS!

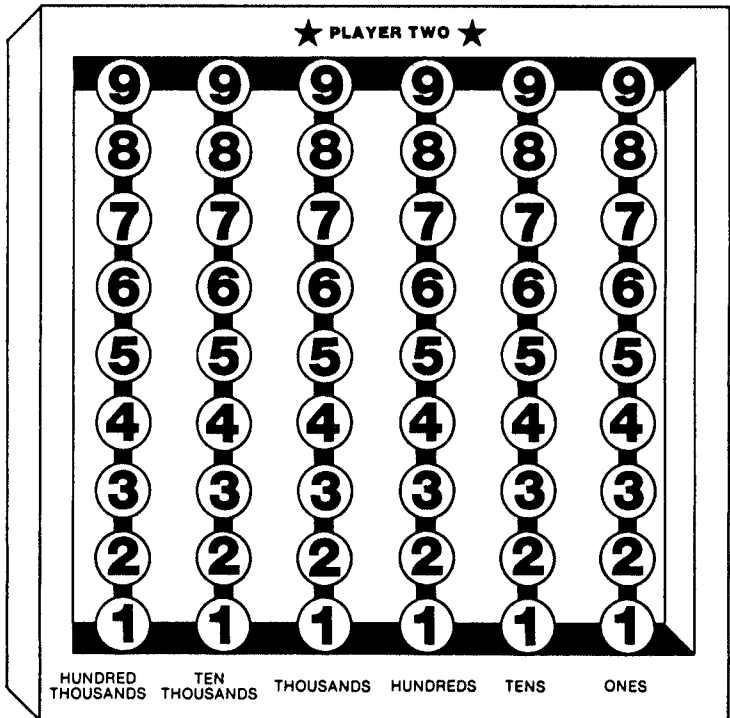
The first player to "place" five markers on an abacus wins this game. To play, load the Math Talk program, following the steps in the "User Instructions" section. Press BEGIN to go to the activity selection list. Next press 4 for Write It, and then select the level of difficulty by pressing the number corresponding to the desired level.

You need two players and five markers for each player to play. Each player selects the "place" he or she wants to use (ones, tens, and hundreds for Level 1; ones, tens, hundreds, thousands, ten thousands, and hundred thousands for Levels 2 and 3).



Listen carefully as the number is spoken. Using the number keys, type the number and press ENTER. To erase a typing mistake, press ERASE before pressing ENTER. The cursor returns to the beginning of the response line.

If your answer is correct, say what digit is in the "place" you chose, and put one of your markers on the correct bead on your abacus board. (For example: You can choose the tens place. The computer says "one hundred twenty four." Put your marker on the 2 in tens column of your abacus.) If your answer is incorrect or if there is a zero in the "place" you said, do not place a marker on the board. The first player with five markers on the board wins.



CAN YOU READ THIS MESSAGE?

Solve the problems in the message. Then use the code to decode the message. Try writing messages to a friend with the code. Be sure your friend knows the code.



CODE			
A = 2			
B = 17			
C = 21	I = 5	O = 7	U = 9
D = 8	J = 11	P = 24	V = 13
E = 4	K = 12	Q = 6	W = 1
F = 22	L = 25	R = 10	X = 18
G = 16	M = 15	S = 19	Y = 3
H = 26	N = 23	T = 20	Z = 14

$$(11 - 2) + 19 + (1 + 3)$$

$$23 + (7 + 2) + 15 + 17 + (2 + 2) + (5 + 5) + (24 - 5)$$

$$(20 + 2) + (10 - 3) + 10$$

$$(14 - 12)$$

$$19 + (8 - 4) + 21 + (20 - 10) + 4 + (15 + 5)$$

$$(32 - 11) + 7 + (5 + 3) + (12 - 8)$$

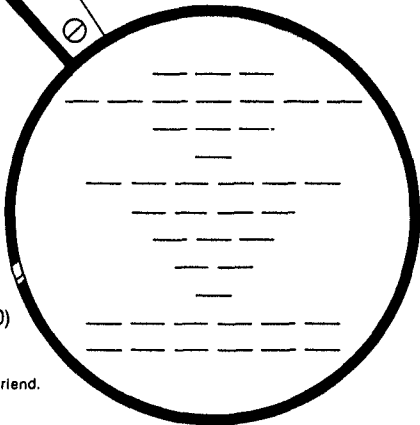
$$(4 - 2) + 23 + (24 \div 3)$$

$$17 + (2 \times 2)$$

$$(12 \div 6)$$

$$23 + (6 + 3) + (5 \times 3) + (20 - 3) + (2 + 2) + (30 - 20)$$

$$(32 - 13) + 25 + (16 - 12) + (3 \times 3) + 20 + (20 + 6)$$



Use the code to write a message to a friend.

QUARKS

A QUARK is a very small particle. Quarks are still a mystery because not much is known about them. In this game you find the smallest number. What number will you find? That's the mystery! You can play alone or with a friend.

To play, load the Number Stumper program, following the steps in the "User Instructions" section. Select the level of difficulty by pressing the number corresponding to the desired level.

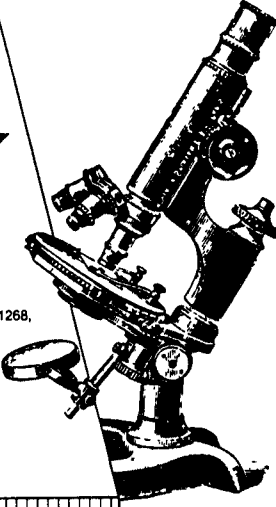
After you solve the problem the computer gives you, add the digits of your answer until you have the smallest number. If you solved Number Stumper correctly, subtract that number from 100. Add the number to 100 if you were incorrect. At the end of five rounds, the player with the smallest number wins.

Score Sheet:

$289 = 2 + 8 + 9 = 19,$ $1 + 9 = 10, 1 + 0 = 1,$ 100 - 1 99
Round 1

$24 = 2 + 4 = 6,$ 99 - 6 93
Round 2

Example
 If the NUMBER STUMPER number is 1268,
 and you solve it correctly,
 add $(1 + 2 + 6 + 8 = 17)$.
 Since 17 has 2 digits,
 add again $(1 + 7 = 8)$.
 Then, subtract 8 from 100
 $(100 - 8 = 92)$.
 If you missed the
 NUMBER STUMPER number,
 add 8 to 100 $(100 + 8 = 108)$.



DID YOU KNOW?

Diameter

The diameter of a circle is a line that goes through the center of the circle.

To find the diameter of a circle, multiply the radius times 2.



Radius

The radius of a circle is a line from the center to the outer edge of the circle.

To find the radius, divide the diameter by 2.



Other Facts

π (Pi) is a symbol representing the amount 3.14.

$\pi = 3.14$ (this number has been rounded).

A number squared equals a number times itself.

$$3^2 = 3 \times 3 = 9$$

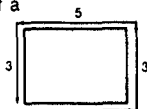
$$4^2 = 4 \times 4 = 16$$



Perimeter

A perimeter is the distance around the outside of a figure.

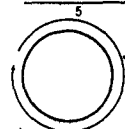
To find the perimeter add all the sides.
 $3 + 5 + 3 + 5 = 16$



Circumference

The circumference is the distance around the outside edge.

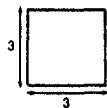
To find the circumference of a circle, multiply π times diameter.



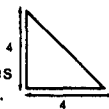
Area

Area is the amount of surface within a figure.

To find the area of a square or a rectangle, multiply the length times width.
 $3 \times 3 = 9$



To find the area of triangles, multiply $\frac{1}{2}$ times the base times the height.
 $\frac{1}{2} \times 4 \times 4 = 8$



To find the area of circles, multiply π times r^2 (radius squared).

Copies of all programs listed on the cassette tape label are located on both sides of the tape. If for any reason you experience trouble loading or accidentally erase a program, another copy is available on the other side of the tape.

To attach and operate your cassette recorder, refer to the User's Reference Guide. Follow these instructions carefully, and the programs should load easily.

However, if your recorder does not respond when you press ENTER while loading the package, the cassette recorder's drive motor may not be compatible with the Personal Computer's circuitry. Although the computer may not be able to operate the cassette automatically, you may be able to operate your cassette manually. Connect the red and white plugs to the cassette unit as described in the User's Reference Guide, but do not connect the black plug. Follow the procedure for loading data as described. When the message "PRESS CASSETTE PLAY" is displayed, press the ENTER key immediately after pressing the cassette's PLAY key. If the data is loaded successfully, you may continue to operate the cassette manually.

To locate the position of programs on a cassette, listen to the tape and note the counter setting when programs begin. Follow these steps to determine the exact location of all programs:

- STEP 1: Rewind your tape and reset the counter to zero.
- STEP 2: Disconnect the computer-to-cassette cable from the cassette player. You now will be able to hear what is on the tape as it plays.
- STEP 3: Press PLAY.
- STEP 4: The programs in the Speak & Math package are listed on the cassette tape in the following order:

MATH TALK
NUMBER STUMPER

A blank section of tape precedes the program. When you hear program data, note the position of the counter beside the program name above. You may wish to subtract 1 or 2 from the counter reading to ensure that, when you load the program, the beginning of your program loads properly.

STEP 5: Use these counter settings in the future to quickly load the cassette tape program.

NOTE: This process can be speeded by alternating between PLAY and FAST FORWARD as you listen.

1. Be sure that the diskette or cassette you are using is the correct one. For a diskette, use the Catalog command on your Disk Manager Command Module to check for the correct program; for a cassette tape, check the label.
2. Be sure you have inserted the Terminal Emulator II Command Module into the slot on the console.
3. If your computer does not respond to the RUN command, be sure to select TI BASIC and load the program before you try to use it.
4. Ensure that your cassette recorder or disk system is properly connected and turned on. Be certain that you have turned on all peripheral devices before you turn on the computer.
5. If your program does not appear to be working correctly, press CLEAR and remove the diskette from the disk drive or the cassette from the recorder. Reinsert the diskette or the cassette, and follow the "User Instructions" carefully. If the program still does not appear to be working properly, remove the cassette from the recorder or the diskette from the disk drive, turn the computer off, wait several seconds, and turn it on again. Then load the program again.
6. If you are having difficulty in operating your Personal Computer or are receiving error messages, refer to the "Maintenance and Service Information" and "Error Messages" appendices in your User's Reference Guide for additional help.
7. If you continue to have difficulty with your Texas Instruments computer or the Speak & Math package, please contact the dealer from whom you purchased the unit or package for service directions.