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Colin Hinson

In the village of Blunham, Bedfordshire.

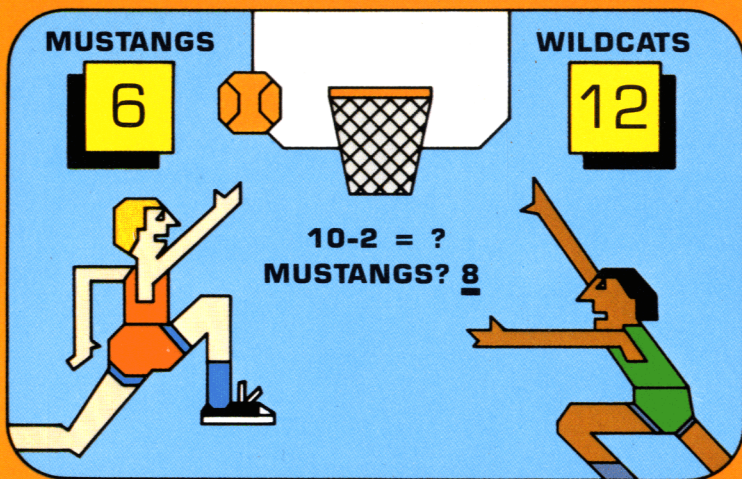


Computer Math Games II

SOLID STATE
SOFTWARE™

COMMAND MODULE

Uses five entertaining, motivating games to help students in grades one through nine reinforce and strengthen basic math skills.



Quick Reference Guide

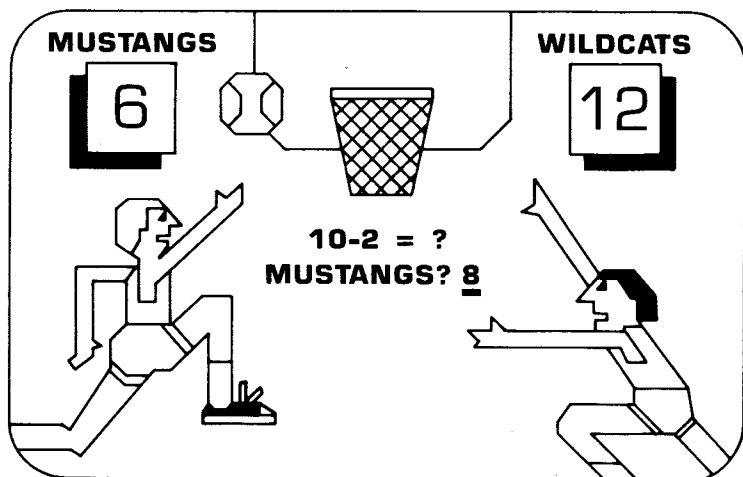
Note that the key sequences required to access special functions depend on the type of computer console you have. If you're using the TI-99/4 console, hold the **SHIFT** key while pressing the appropriate letter key. If you're using the TI-99/4A console, hold the **FCTN** key while pressing the number or punctuation key. Important keystroke sequences are summarized here for your "quick reference."

<u>TI-99/4</u>	<u>TI-99/4A</u>	
→ D, ← S	→ D, ← S	Controls horizontal movement of the cursor.
ENTER	ENTER	Proceeds to the next display.
SHIFT Z (BACK)	FCTN 9 (BACK)	Returns to the first options list of the current activity.
SHIFT W (BEGIN)	FCTN 5 (BEGIN)	Returns to the initial Computer Math Games II selection list.
SHIFT R (REDO)	FCTN 8 (REDO)	Returns to the list of name options for the current activity.
SHIFT T (ERASE)	FCTN 3 (ERASE)	Erases previously typed characters.
or	or	
SHIFT C (CLEAR)	FCTN 4 (CLEAR)	
SHIFT Q (QUIT)	FCTN = (QUIT)	Returns to the master title screen.



TEXAS INSTRUMENTS
HOME COMPUTER

Computer Math Games II



This *Solid State Software*[™] Command Module is designed to be used with the Texas Instruments Home Computer. Its preprogrammed solid-state memory expands the power, versatility, and capability of your Home Computer.

Designed by: Charles Lund

Book developed and written by: Staff members of the Texas Instruments Education and Communications Center.

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See important warranty information at back of book.

TEXAS INSTRUMENTS HOME COMPUTER

INTRODUCTION

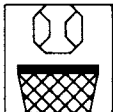
In today's math-oriented world, it is important to develop strong mathematical skills at an early age. After being introduced to the concepts involved, a student needs the challenge of stimulating practice to improve and increase basic math skills.

The Computer Math Games II *Solid State Software*[™] Command Module is the second of six modules of math games that can help provide the opportunity for this practice. The module is designed by Charles Lund, Supervisor of Mathematics for the St. Paul, Minnesota, public schools and the staff of Addison-Wesley Publishing Company in cooperation with the staff of Texas Instruments Incorporated.

The games included in the module are both fun and challenging. They use music and an entertaining, motivating format to help reinforce and strengthen math skills. By allowing you to select the level of difficulty of the problems in each activity, this module can be used by students in grades one through nine. (The five other modules cover different mathematical concepts.) In addition to providing exciting math games that help develop mathematical knowledge, the activities help enhance a student's socialization skills through working with other players or as part of a team. The games also encourage the development of decision-making capabilities and general problem-solving skills.

Each activity is flexible and can be used in various ways. Players can compete as individuals or as members of a team. This feature allows the games to accommodate a small or large number of interested participants, so the module can be used in the home or in the classroom to supplement school instruction.

Because the Computer Math Games II module is designed for supplementary use, it is assumed that the student has been introduced to each math concept presented in the activities prior to using the computer. The games and activities provide a change of pace from typical practice and are a motivating, enjoyable way to review and test math skills.

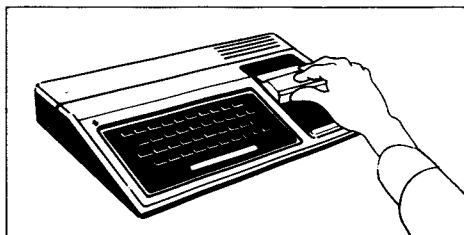
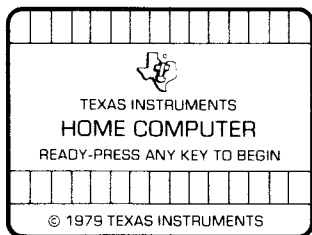


Computer Math Games II

USING THE SOLID STATE SOFTWARE™ COMMAND MODULE

An automatic reset feature is built into the computer. When a module is inserted into the console, the computer returns to the master title screen. All data or program material you have entered is erased.

Note: Be sure the module is free of static electricity before inserting it into the computer (see page 11).



1. Turn the computer ON, and wait for the master title screen to appear. Then slide the module into the slot on the console.
2. Press any key and the master selection list appears. To select the module, press the key corresponding to the number beside MATH GAMES II.

Note: To remove the module, *first* return the computer to the master title screen by pressing **QUIT**. *Then* remove the module from the slot. If you have any problem inserting the module, or if it is accidentally removed from the slot while in use, please see "In Case of Difficulty" on page 11.

TEXAS INSTRUMENTS

HOME COMPUTER

COMPUTER MATH GAMES II ACTIVITIES

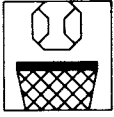
The Computer Math Games II module contains five games or activities to help students in grades one through nine develop some basic math skills. The activities, designed for one to three players or teams, correlate with standard math sequences. They are flexible enough to be used at several skill levels and in various teaching situations.

Activity 1: Your Number's Up

This activity for one to three players provides practice with the place value of whole numbers and decimals. Players can choose to "build" either the highest or lowest number by positioning digits on a displayed place-value mat. The computer chooses the digits at random. The game is suggested for grades two through nine.

At the beginning of the activity, you must designate the number and names (nine-character maximum) of the players or teams. Then decide whether you want the winner of the game to be the player who composes the highest or the lowest number. After entering your decision, specify how many digits (from one to five) and decimal places (from zero to five) you want the numbers to contain. Then you're ready to begin the activity.

The computer first selects a digit at random for Player 1 from a spinner in the left corner of the display. When the spinner stops on a digit, Player 1 decides the place value he or she wants the digit to hold. The columns on the place-value mat are labeled according to the number of digits and decimal places specified by the players at the beginning of the game. For example, if the players choose to compose a number with three digits and two decimal places, the computer displays three columns indicating the place values of the three digits. The first column is labeled 1 for the ones place. The second and third columns are labeled .1 and .01, respectively, to indicate the tenths and hundredths place values. When Player 1 decides in which column to place the digit, he or she types the label of the column, not the digit itself. For example, if Player 1's first digit is a five and the player wants to place that digit in the hundredths column, he or she types .01. Player 2 and Player 3 then take their turns. The winner is the player or team that "builds" the highest or lowest number, depending upon the choice you made.



Activity 2: Math Basketball

This game supplies timed practice with basic addition, subtraction, multiplication, or division facts. It is designed for two players or teams who have comparable math skills. The object is to be the first player or team to score 20 points. Points are scored by correctly solving problems, and each correct answer is worth two points. Each player has a time limit of 12 seconds for each response. If a game ends in a tie, the computer declares the player or team with the quickest response time as the winner. The game is suggested for grades one through nine.

Begin the game by entering the names of each player or team. Then select the type of problems to include in the activity: addition, subtraction, multiplication, division, or a random mixture of all types. If you choose to practice with one type of problem, you can select the range of the numbers you want to use (one-character maximum). For example, if you want to practice with the numbers zero through 9, enter 0 (zero) as the minimum and 9 as the maximum for each number in the problem.

Music now signals the beginning of the game! Player 1 answers the first problem and shoots the basketball into the basket. The computer displays the equation and the amount of time Player 1 used to answer. Then Player 2 answers the next problem and aims for the basket. A correct answer ensures a perfect basket and two points! An incorrect answer means a missed basket and no points. The game continues until one player or team reaches 20 points.

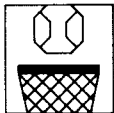
TEXAS INSTRUMENTS HOME COMPUTER

Activity 3: Match Up

The third activity in the module gives practice in combining three whole numbers whose results range from one to 60 using addition, subtraction, multiplication, division, or exponents to achieve a specific result. The activity can be played by two or three players or teams. The object of Match Up is to be the first player or team to get either three, four, or five numbers aligned in a horizontal, vertical, or diagonal row on a grid. In this activity, each player or team is given three numbers and asked to make an equation using all three numbers. If the answer to the equation is on the grid, the player or team receives that spot. The game is suggested for grades four through nine.

Before starting the game, enter the number of players and the name of each one. Then select the type of game you want to play: easy, medium, or hard. An easy game uses the numbers 1 through 30, while a medium game uses 1 through 45 and a hard game uses 1 through 60. Last, select the size grid you want: three squares by three squares, four squares by four squares, or five squares by five squares.

Player 1 begins by forming an equation using three numbers that appear on the display. The answer to the equation should be one of the numbers within the grid. For example, assume that the computer supplies the numbers 2, 3, and 3. The number 9 is one of the numbers in the grid. The equation Player 1 composes could be $2 \times 3 + 3$, which equals 9. The three numbers do not have to be used in the order shown on the screen, but all the numbers must be used once. No number can be used more than once, and a player may skip a turn if he or she cannot form an equation with a desired result. The computer recognizes the + sign for addition, the - sign for subtraction, the \times or * sign for multiplication, the / sign for division, and the \wedge sign for exponents. After an equation is entered, the computer marks the correct place on the grid, and it's Player 2's turn. The winner is the first player or team to fill an entire horizontal, vertical, or diagonal row of the grid.



Computer Math Games II

The hierarchy of math is demonstrated in this activity. In each equation composed, the computer solves for exponents first. It then solves multiplication and division operations, followed by addition and subtraction operations. If the player does not want to follow this pattern, parentheses may be used to designate which operation the computer solves first. If two operations of the same type are included in an equation, the computer first solves the one on the left side of the equation, followed by the operation on the right.

Activity 4: Tic-Tac-Math

Tic-Tac-Math gives practice with addition, subtraction, multiplication, or division using whole numbers, decimals, or integers. The game is designed to be played by two players or teams with comparable math skills. The object of Tic-Tac-Math is to get a specified number of marks in a horizontal, vertical, or diagonal row on a grid. You select the size of the board and the number of marks required to win. The players take turns solving problems and then place their marks in one of the squares on the grid each time they answer correctly. The game is suggested for grades one through nine.

First, enter the names of both players or teams. Then choose the size of the board. It may have from three to 10 squares horizontally and vertically. Next, designate the number of marks needed in a line to win (from three to 10). Now an option list for types of problems appears. You may add, subtract, multiply, or divide whole numbers, decimals, or integers. As in Activity 2, you choose the ranges of the numbers used in the problems (three- or four-character maximum). Enter the minimum and maximum numbers.

The first problem then appears on the screen, and Player 1 enters the answer. The answer must be entered from right to left in addition, subtraction, and multiplication problems. For example, if the answer is -26 , the 6 must be typed first, followed by the 2, followed by the negative sign. In division problems, the answer must be typed from left to right. If Player 1 answers correctly, he or she chooses the square in which to place a mark by using the arrow key and the space bar. Player 2 repeats the procedure. The game's winner is the first player or team to place the selected amount of marks in a horizontal, vertical, or diagonal row on the grid.

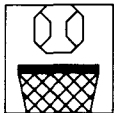
TEXAS INSTRUMENTS HOME COMPUTER

Activity 5: Horse Race

Activity 5 provides one or two players with timed practice in basic addition, subtraction, multiplication, or division skills. Each player has a time limit of 16 seconds to respond to a problem. When the player correctly answers the problem, that player's horse moves down a racetrack on the display. The first player to reach the finish line wins. The game is suggested for grades one through nine.

The computer first asks for the number and names of the players. There may be one or two players competing against the computer. Next, decide whether you want to practice with addition, subtraction, multiplication, or division problems. You also may choose a random mixture. As in Activity 2, you designate the range of the numbers used in the problems (one-character maximum) if you choose to practice with one type of problem. Enter the minimum and maximum numbers for each number in the equation.

The computer now plays a call to the races, and you're ready to begin! Player 1 enters the answer to the first problem. The computer tells how long it took to respond and whether or not the answer is correct. The second player responds to the next problem, and the computer displays the time it took Player 2 to answer. Both players' horses, along with the computer's horse, move down the racetrack. A correct answer, combined with the amount of time taken to respond, determines how far a horse moves on the track. The computer's horse advances according to the number of incorrect answers supplied by Player 1 and Player 2. The players continue until one of the horses reaches the finish line and a winner is declared.



SPECIAL FEATURES

Rewards

Each time your child gives a correct answer in an activity, the computer displays the word "Correct." In timed games, it also displays the amount of time taken to answer the problem. At the end of an activity, the computer displays the name of the winner and plays a short tune. In activities with a time limit, the total time taken by each player is shown.

Error Signals

If you enter an incorrect answer, the computer displays the word "Incorrect" and the correct answer. In time-limit games, the amount of time taken also is displayed. If you fail to respond within the time limit, the computer displays "Time's Up" and gives you the correct answer.

TEXAS INSTRUMENTS

HOME COMPUTER

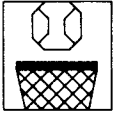
Your Child And The Computer

The Texas Instruments Home Computer is a rugged, durable device designed for easy use and care. Teach your child to give the computer the same good care and respect he or she would give a television set, record player, radio, or any piece of electronic equipment.

1. Keep snacks and beverages away from the console.
2. Don't hammer on the keyboard or place heavy objects on it.
3. Don't touch the module contacts. These are recessed in the module to help prevent accidental soiling and/or damage.

The letters and numbers on the keyboard are arranged in the same order found on standard typewriter keyboards. If your child is not familiar with a typewriter or has not used your Home Computer before, take a few minutes to acquaint him or her with the keyboard. Point out the row of number keys at the top and the rows of letter keys below. Show your child how to insert the module and select the activities. This brief "tour" of the computer will help reinforce correct procedures and instill confidence as your child starts out in a new world of computers.

Today, computers are involved in almost every aspect of life. Working with this module can help your child become familiar with computers and their operation. Since computer-enhanced instruction is more common in the classroom every year, this knowledge can give your child an important advantage.



CARING FOR THE MODULE

These modules are durable devices, but they should be handled with the same care you would give any other piece of electronic equipment. Keep the module clean and dry, and don't touch the recessed contacts.

CAUTION:

The contents of a Command Module can be damaged by static electricity discharges.

Static electricity build-ups are more likely to occur when the natural humidity of the air is low (during winter or in areas with dry climates). To avoid damaging the module, just touch any metal object (a doorknob, a desk lamp, etc.) before handling the module.

If static electricity is a problem where you live, you may want to buy a special carpet treatment that reduces static build-up. These commercial preparations are usually available from local hardware and office supply stores.

IN CASE OF DIFFICULTY

If the module activities do not appear to be operating properly, return to the master title screen by pressing **QUIT**. Withdraw the module, align it with the module opening, and reinsert it carefully. Then press any key to make the master selection list appear. (Note: In some instances, it may be necessary to turn the computer off, wait several seconds, and then turn it on again.)

If the module is accidentally removed from the slot while the module contents are being used, the computer may behave erratically. To restore the computer to normal operation, turn the computer console off, and wait a few seconds. Then reinsert the module, and turn the computer on again.

If you have any difficulty with your computer or the **COMPUTER MATH GAMES II** module, please contact the dealer from whom you purchased the unit and/or module for service directions.

Additional information concerning use and service can be found in your *User's Reference Guide*.

The Computer Math Games II Command Module is the second in a series of six with fun and challenging activities to help students develop and review mathematical knowledge. The concepts in the module correspond to material traditionally covered in grades one through nine.

Computer Math Games II module activities include:

- **Your Number's Up** — Provides practice with the place values of whole numbers and decimals.
- **Math Basketball** — Supplies timed practice with basic addition, subtraction, multiplication, or division facts.
- **Match Up** — Gives practice in combining three whole numbers using addition, subtraction, multiplication, division, or exponents to achieve a specific result.
- **Tic-Tac-Math** — Furnishes practice with addition, subtraction, multiplication, or division using whole numbers, decimals, or integers.
- **Horse Race** — Provides timed practice in basic addition, subtraction, multiplication, or division skills.

Adds 18K bytes of active memory with stored program to your TI Home Computer.

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*Texas Instruments invented the integrated circuit,
the microprocessor, and the microcomputer.
Being first is our tradition.*



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