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THREE R MATH HOME SYSTEM

LEARNING

Bring the widely acclaimed Three R Math System into the home (ages 5-13)

by Dan Rohr

Requires: ATARI BASIC Language Cartridge

Diskette version (1): (APX–20208)

ATARI 810 Disk Drive
40K RAM

Edition A

CONSUMER-WRITTEN PROGRAMS FOR

ATARI® HOME COMPUTERS

APX
ATARI Program Exchange

Printed in U.S.A.

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Distributed By

The ATARI Program Exchange
P.O. Box 3705
Santa Clara, CA 95055

To request an APX Product Catalog, write to the address above, or call toll-free:

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Introduction

OVERVIEW

If your children have used the THREE R MATH programs (APX-20133 and APX-20203) in their classrooms, they can now use the same system at home. THREE R MATH HOME SYSTEM was designed for students who want advanced basic math drill, remedial drill, or grade level drill.

This easy-to-use program offers all the same lively (but educationally sound) drills and analyses of the classroom system for the home. Not only do children have as much time as they want to practice, but they also get a chance to work cooperatively with their parents. The manual offers suggestions on ways parents can involve themselves in their children's educational development using THREE R MATH HOME SYSTEM.

Parents select one of 101 skill levels of addition, subtraction, multiplication, and division, and incorporate it into a five-letter password specifying the speed, number of problems per assignment, and total time allowed. The child has only to type his name and the password, and the drills begin. The program congratulates and encourages him as he works, and then summarizes his results. It's easy to print a complete analysis of his progress along with extra problems.

Worksheets--with or without answers--can be printed on any of the 101 levels to supplement the drills on the screen.

REQUIRED ACCESSORIES

ATARI BASIC Language Cartridge
40K RAM
ATARI 810 Disk Drive

OPTIONAL ACCESSORIES

ATARI 825 80-column Printer or equivalent printer, Epson printer, or NEC8023A printer

CONTACTING THE AUTHOR

Users wishing to contact the author about THREE R MATH HOME SYSTEM may write to him at:

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P.O. Box 391
Los Olivos, CA 93441

or telephone him at:

805/688-8270

Getting started

LOADING THREE R MATH HOME SYSTEM INTO COMPUTER MEMORY

1. Insert the ATARI BASIC Language Cartridge into the cartridge slot of your computer.

2. Have your computer turned OFF.

3. When the BUSY light goes out, open the disk drive door and insert the THREE R MATH HOME SYSTEM diskette with the label in the lower right-hand corner nearest to you. Close the door.

4. Turn on your computer and your TV set. The program will load into computer memory and start automatically.

THE FIRST DISPLAY SCREEN

While the program is loading into computer memory, the message "PLEASE WAIT" appears on the screen. When the program has finished loading, you see the following screen:

```
          3R MATH SYSTEM
            HOME VERSION
        **********************
        *        PRESS       *
        *      [START]       *
        *    TO    BEGIN     *
        **********************
   [SELECT] for Practice Worksheets
By Dan Rohr       Copyright (c)1983
```

Figure 1 First display screen

Sample session

To see just how easy THREE R MATH HOME SYSTEM is to use, follow the steps in this sample session. Begin with the "Getting started" section of this manual, above.

1. When the first screen (Figure 1, above) appears, press the START key. You see the following screen:

```
WHAT IS YOUR NAME?
- - - - - - - - - - -

Type your name.  Press [RETURN]
```

Figure 2 Name display

Type your name (up to ten letters, spaces, and the period) and press the RETURN key. Use letters, spaces, and the period. To correct a mistake, press the DELETE BACK S key.

2. When you've typed your name, press the RETURN key to see the following screen:

```
(Your name), WHAT IS
   YOUR PASSWORD?
   ------------
  _1__2__3__4__5_
   ------------

Press [DELETE] to correct a mistake
```

Figure 3 Password display

For this sample session, type this password:

E 1 B D C

The password instructs the program to give a certain kind of problem, a set number of problems, and a certain time limit. In this case, you've selected two-digit numbers subtracted from two-digit numbers without regrouping (in other words, no numbers will be "carried" from one column to the next). You'll have five problems, each appearing on the screen for a maximum of ten seconds, with a total of five minutes to work the complete set of problems.

If you make a mistake entering the code, press the DELETE BACK S key. After you type the fifth character, the following instruction appears at the bottom of the screen:

PRESS [START] IF CORRECT

Correct any errors by pressing the DELETE BACK S key and typing in the correct information.

3. Press the START key. You have a short wait while the program prepares your assignment. The following message appears:

GET READY!
GET SET.
HERE YOU GO!

4. The problem display now appears, as follows:

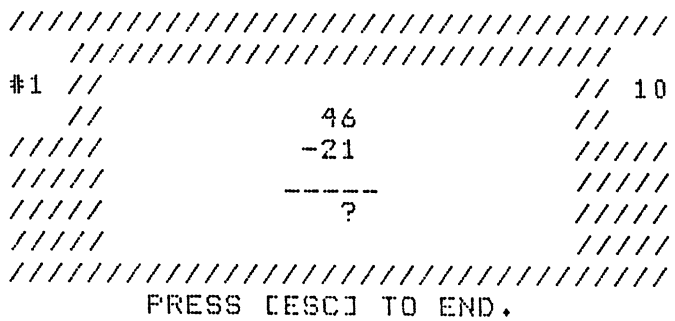

Figure 4 Problem display

The #1 in the upper left of the screen shows that this is the first problem in the assignment. The 10 in the upper right shows the number of seconds remaining to solve the problem. Type the number of the answer to replace the "?". For Figure 4, type 5 first and then 2. Once you type a number, you can't go back to change it.

If your answer is correct, sounds congratulate you. Expanding rectangles appear on the screen, alternating with encouraging messages. You see the problem and its solution. Press any key for your next problem.

5. If your first answer is incorrect, the following display appears:

```
STUDY THIS PROBLEM

   46
  -21
  ---

Press ANY KEY to repeat problem
```

Figure 5 Incorrect first answer display

Your incorrect answer doesn't appear on the screen (so that you don't associate the incorrect answer with the problem). Since the countdown timer doesn't appear, you can take your time to recalculate the answer. When you're ready, press any key. The problem display (Figure 4) reappears. If you type a correct answer, the same display you'd see if you'd answered correctly the first time appears.

If your second answer is incorrect, the following display appears:

```
THIS IS THE
CORRECT ANSWER

   46
  -21
  ---
   25

Press ANY KEY for next problem
```

Figure 6 Second incorrect answer display

When you press a key, the problem display (Figure 4) appears with a different problem.

6. If the time runs out, you see the following screen

```
THE TIME IS UP
   46
  -21
  ---

TRY AGAIN

Press ANY KEY to repeat problem
```

Figure 7 First time up display

If you let the time run out the second time, you see the following display:

```
YOUR TIME IS UP

   46
  -21
  ---
   25

STUDY THIS
Press ANY KEY for next problem
```

Figure 8 Second time up display

When you press any key, the problem display (Figure 4) appears with a different problem.

7. For this sample session, complete all the problems. Answer some correctly and some incorrectly, and let the time run out for others, so that you can see all the program's responses. When you've finished, or when five minutes has passed, the problems stop. You receive a message from Smedley, and instructions to press any key for your final summary.

8. The following is an example of a final summary:

```
                    SUMMARY

          CORRECT.....3   ( 60%)
          WRONG.......1   ( 20%)
          NOT DONE....1   ( 20%)
               TOTAL PROB.....5

                    SCORE
                     3642

                PRINTOUT  Y/N
```

Figure 9 Summary display

9. Press N and then the RETURN key to see the first display screen (Figure 1).

Using the main program

ENTERING YOUR NAME

When you see the first display screen (Figure 1), press the START key to use the main program. The name display screen (Figure 2) appears. Type your name, up to ten characters (letters, spaces, and periods). If you make a mistake, use the DELETE BACK S key to erase it. When the name appears on the screen the way you want it, press the RETURN key.

PASSWORD CODES

Note. If you see that your name is misspelled, you may return to the previous screen by pressing the ESC key.

Your next choice is a password made up of five letters and numbers. This instructs the program how many problems to give you, and what kind of problems you're going to solve (101 different types of addition, subtraction, multiplication and division problems). It also sets the amount of time for each one and for the total problem set.

Parents prepare the passwords, based on the codes described in detail in Appendix A of this manual. Following is a brief description of the five letters and numbers of the password:

PART	DESCRIPTION
1-2	Requires a letter followed by a number Specifies type and difficulty of problem Example: E1 means subtraction of a 2-digit number from another 2-digit number without regrouping
3	Requires a letter Specifies the number of problems to be worked. Ranges from 5-48 (or not set at all) Example: D means 15 problems
4	Requires a letter Specifies how long the problems remain on the screen Ranges from 2-60 seconds (or not set at all) Example: F means 20 seconds
5	Requires a letter Specifies the number of minutes to work on the problem set Ranges from 3-20 minutes Example: C means 5 minutes.

The following key shows the values for the third, fourth, and fifth parts of the password. Check the Appendix for the first two parts.

3 Number of problems	4 Speed per problem	5 Total time
A - not set	A - not set	A - not set
B - 5	B - 2 seconds	B - 3 minutes
C - 10	C - 5	C - 5
D - 15	D - 10	D - 7
E - 20	E - 15	E - 10
F - 30	F - 20	F - 12
G - 40	G - 30	G - 15
H - 48	H - 60	H - 60

The password display (Figure 3) appears after you've entered

your name. Type the five-letter password. If you make a mistake, press the DELETE BACK S key to correct it.

As soon as you type the fifth character, the program requests confirmation as follows:

PRESS [START] IF CORRECT

If there are errors, press the DELETE BACK S key to start over. When the password is correct, press the START key.

You have a moment's wait while the program prepares the password assignment. The following message appears on the screen:

GET READY!
GET SET.
HERE YOU GO!

SOLVING THE PROBLEMS

The problem display appears on the screen (see Figure 4). The number at the upper left tells which problem you're working on. For example, #2 means the second problem in the series. In the upper right, the number of seconds remaining to solve each problem counts down while you work. The count starts over each time a new problem appears.

To answer, type a number in place of the question mark in the display. Once you type an answer, you can't go back to change it.

If your answer is correct, sounds encourage you, and expanding rectangles and encouraging messages appear on the screen until you press any two keys for the next problem.

If you're wrong, a display like Figure 5 appears, showing you the problem without the answer. You never see your wrong answer, so you won't associate it with the problem. You can study as long as you like, since the countdown timer is turned off. When you're ready to try again, press any key.

If your second answer is right, the same congratulatory messages flash as if you'd answered it correctly the first time. If your second try is not correct, a display like Figure 6 appears. You see the correct answer, and you can study it as long as you like before pressing any key to move to the next problem.

If your time runs out, you see a screen like Figure 7, showing the problem without the answer. You can study it as long as you like before pressing any key to try again. If time runs out again, a display like Figure 8 appears with the answer. You can study the problem as long as you wish. If your second answer is correct, you see a congratulatory display just as if you'd answered correctly the first time.

SUMMARY

After you answer all the problems requested in your password, or your total time runs out, or you press the ESC key, a letter from Smedley appears on the screen. Follow Smedley's instructions to press any key to see your summary.

The summary looks like Figure 9. It shows how many you answered correctly and incorrectly, and how many you weren't able to answer in the given time. It calculates these figures in percentages, and gives a score.

The score is based on adding points for correct answers, subtracting points for incorrect answers, and then multiplying this total by a percentage time factor. If the score is below 300, it appears as 300. The maximum score is just below 10,000. If you compare scores between children or between sessions, make sure the fourth letter of the password (speed per problem) is the same. Otherwise it's like comparing apples and oranges.

PRINTOUTS

The summary (Figure 9) asks if you want a printout. This means a detailed analysis of the results of your child's work. It may seem overwhelming at first because there's so much information. Just select what you can use, and ignore the rest.

You can use the printout for several purposes. For example, you can diagnose your child's specific problem areas. The printout offers ten extra problems at the bottom of the page. Work them with your child to give him more practice in his special problem area, in a more traditional way.

Make sure your printer (and your interface module if you're using one) is on, and your paper is lined up at the top of a new page. Type Y to see the following screen:

```
        PRINTER CODES

A.........ATARI OR CENTRONICS
E.........EPSON
N.........NEC8023A

R.........RETURN TO SUMMARY

        WHICH LETTER?
```

Figure 10 Printer code

If you change your mind and decide not to request a printout, type R. The summary (Figure 9) reappears.

To order a printout, type the letter that corresponds to your printer. You have a short wait while the message "ONE MOMENT PLEASE" appears on the screen. Then the program displays the words "[Name]'S PRINTOUT IS BEING PRINTED" as the printing begins. It takes one or two minutes.

When the program finishes printing, it displays this message:

```
        PRINTOUT FINISHED

M.....MAIN PROGRAM
A.....ANOTHER PRINTOUT
E.....END

        WHICH LETTER?
```

Figure 11 Printout complete display

Press M to see the first display screen (Figure 1). To start a printout of the same information again, press A. If you press E, the READY prompt appears.

The following is an example of a printout from this option.

```
**********STEVE**********
Here are the problems you just worked.
I hope you enjoyed doing them.
==========================================================

  96:  79:  84:  63:  73:  87:  56:  46:  99:  59:
 -82:  -12: -43: -10: -41: -41: -43: -12: -84: -44:
-------------------------------------------------------
  14:  67:  41:  53:  32:  46:  13:  34:  15:  15:
-------------------------------------------------------
   :   :x  0:   :x 34:   :x  0:   :x 51:   :
   :   :   :   :  33:   :x  0:   :   :   :
   :   :(T=5):  :(T=2):  :(T=5):  :(T=2):  :
(T=2):(T=1):(T=1):(T=3):(T=4):(T=1):(T=5):(T=1):(T=1):(T=2)
=======================================================

x = WRONG ANSWER                              T=Time

Program: EICCD..Problem Set: 10..Speed: 5..Set Time: 7 min.
Score: 3250.. Problem Time: 0 min. 35 sec...Total time: 2 min.
-------------------------------------------------------
CORRECT: 1ST TIME: 2ND TIME: WRONG  : NOT DONE : PROB. WORKED
8 (80%): 6(60%)  : 2 (20%) : 1 (10%) : 1 (10%)  :  xx10xx
```

(At the bottom of the printout is the question "CAN YOU WORK THESE?" followed by ten extra problems from the same problem code.)

Figure 12 Sample printout

After Steve's name, the program prints a friendly message. The next line shows the five problems he worked and their correct answers.

The line below the answers contains columns with space for four notations. The top one is blank if Steve answered the problem correctly on the first try. If there's a number in the top row preceded by an asterisk (*), that means Steve made a mistake. If the number in the top row following the asterisk is a zero, he ran out of time before he could answer. If any other number appears, it shows the incorrect answer Steve gave.

The second row is only filled in if Steve gave a second answer and if it too was incorrect (or if he ran out of time for that one too).

The third and fourth rows show the times he took to give his answers. (T stands for time.) If he answered the problem correctly, there's only one time given on the printout.

In Figure 12, the first column shows that Steve answered the first problem correctly (36-22=14). It took him two seconds. The third column shows that time ran out the first time he tried to subtract 43 from 84. The second time he tried, he gave the correct answer, and it only took one second. Look at column five (73-41=32). The first time, Steve took two seconds to give the incorrect answer of 34; the second time, he took four seconds, but still gave an incorrect answer (33).

Next on the printout is a line showing the password Steve used (E1CCD), and what it means.

The line below that shows Steve's score and the times he took to solve the problems. The score ranges from a minimum of 300 to a possible maximum of just under 10,000. Steve's score is 3250, based on adding points for a percentage of the correct answers, subtracting points for a percentage of the incorrect answers, and then multiplying this by a percentage time factor. Don't compare scores between children or between sessions unless the fourth letter of each password is the same. The fourth letter applies to speed per problem, and this is a variable the program uses in calculating scores.

The problem time (35 seconds for Steve) is the total number of seconds he spent looking at the problem display (Figure 4). It's the sum of all the T's listed on the printout. The total time (2

minutes for Steve) is the amount of time he spent on the whole session. The timer started after Steve entered the password, and ended when Smedley's letter appeared.

Below the score is a summary of the numbers of problems solved correctly on the first and second tries, and the numbers of problems missed and not done in time. The percentages of all the numbers of problems appear in parentheses.

At the bottom of the printout under the question, "CAN YOU WORK THESE?" are ten extra problems. They're all from the same level as the ones Steve worked the first time.

Using the practice worksheet program

CHOOSING THE PRACTICE WORKSHEET PROGRAM

Use this part of the program to print worksheets on any of the 101 skill levels. You can print worksheets with no answers given, or with half the answers (to give children enough hints that they're encouraged to figure out answers), or answer keys.

When the first display screen (Figure 1) appears, press the SELECT key to reach the practice worksheet program. The following screen appears:

```
**********************************
*          THREE R MATH          *
*            PRACTICE            *
*           WORKSHEETS           *
**********************************

    Press [START] to continue.
[SELECT] to return to MAIN PROGRAM

 Copyright (c)1983    by Dan Rohr
```

Figure 13 Worksheets title screen

If you press the SELECT key, you return to the first display screen (Figure 1). Press the START key to produce worksheets.

PROBLEM CODES

First, decide which of the 101 THREE R MATH skill levels you want the worksheets to cover. Choose as many as 15 problem codes from Appendix A of this manual. A problem code consists of a letter followed by a number. The following screen asks you to make your choice:

```
PROBLEM CODE?

- -

  Refer to program documentation for
the problem codes of the 101 options.

      Type code and press [RETURN]
```

Figure 14 First problem code displays

Type a problem code and press the RETURN key. The program requests the next code, and explains what to do

```
NEXT CODE;

? _

    Up to 15 codes can be entered
      Type code and press [RETURN]
  If all are entered - Press [START]
```

Figure 15 Second problem code display

When you've entered all the codes you want, press the START key.

TYPE AND NUMBER OF WORKSHEETS

Next decide how many of each worksheet to print. You can request as many as 99 copies of each worksheet, but large numbers probably aren't practical considering the speed of most printers. There are three types of worksheets.

Worksheets without answers

As soon as you press the START key, you see the following screen:

```
HOW MANY
STUDENT WORKSHEETS
(NO ANSWERS GIVEN)

NUMBER: ?

ENTER NUMBER AND PRESS [RETURN]
```

Figure 16 Worksheets - no answers

This option provides 36 randomly generated problems (30 for division) for the problem code you requested. No answers appear on the worksheets. Type the number of worksheets you want (up to 99) and press the RETURN key. If you don't want any of this type of worksheet, just press the RETURN key.

Worksheets with half answers

After you press the RETURN key, the screen changes color, and the following display appears:

```
HOW MANY
STUDENT WORKSHEETS
(HALF ANSWERS)

NUMBER: ?

ENTER NUMBER AND PRESS [RETURN]
```

Figure 17 Worksheets - half answers

These worksheets are just like the previous ones, but every other answer appears on the page. Some children like this because half their work is already done. This format also helps encourage children to compare the problems they're working on

with similar ones.

Type the number of this type of worksheet you want, and press the RETURN key. If you don't want any of this kind, just press the RETURN key.

Answer keys

As soon as you press the RETURN key, the following display appears:

```
HOW MANY
ANSWER KEYS
-----------

NUMBER: ?

ENTER NUMBER AND PRESS [RETURN]
```

Figure 18 Worksheets - answer keys

Answer keys look like the other kinds of worksheets, except that all the answers appear. You can use these to check the accuracy of the problems your child has worked.

Type the number of answer keys you'd like and press the RETURN key. If you don't want any answer keys, just press the RETURN key.

Next you have a chance to modify the number of worksheets you've requested. The following screen appears:

```
WORKSHEETS REQUESTED

1. Student Worksheet (No answers)...1
2. Student Worksheet (Half answers).1
3. Answer Key.......................0

  TO REVISE - TYPE WORKSHEET NUMBER
     TO CONTINUE - PRESS [START]
```

Figure 19 Worksheets type and number confirmation

Suppose you press 3. The answer keys screen (Figure 18) reappears. Type the number you prefer and press the RETURN key. You see Figure 19 again with the new number. When the screen shows the numbers you want, press the START key.

PREPARING THE PRINTER

Now it's time to make sure your printer (and your interface module, if you're using one) is on. Line up the paper and turn the printer to the ONLINE mode.

DIFFERENT SETS

Now decide how many different sets of worksheets you want for each code you've requested. Each set has the same number of each type of worksheet, but the problems for each set are different. If your child is having difficulty with one level, he can work a different set of problems for practice (rather than doing the same set over again).

When you've pressed the START key, the following screen displays:

```
        YOU HAVE REQUESTED THE FOLLOWING
                WORKSHEET CODES:

 ---------------------------------------
| 1)E1 | 2)   | 3)   | 4)   | 5)   |
| 6)   | 7)   | 8)   | 9)   |10)   |
|11)   |12)   |13)   |14)   |15)   |
 ---------------------------------------

        How many DIFFERENT sets of each
                do you want?
                NUMBER OF SETS?
```

Figure 20 Worksheets - number of sets

Type the number of different problem sets you want for each problem code and press the RETURN key.

You have a short wait while the program prepares the worksheets you requested. During this time, the messages "PLEASE WAIT" and "GETTING ORGANIZED" appear alternately on the screen. When the printing begins, you see the following message:

PRINTING PAGE 'E1'

PRINTER CONTROL

[ESC] TO STOP
[START] TO START

If you want to stop the printer during this process, press the ESC key. To resume, press the START key. When the program finishes printing, the practice worksheets title screen (Figure 13) reappears.

Author's note

Congratulations! You've purchased a math drill program that provides computer-assisted practice for your child from preschool to junior high. This kind of home program is something new. Once you've mastered the techniques of working with your children, and taking part in their educational progress, new and exciting avenues in your relationship open up.

The THREE R MATH SYSTEM and THREE R MATH CLASSROOM KIT have been used in schools throughout the United States. THREE R MATH HOME SYSTEM contains the same basic math program, but not the extensive record keeping feature. This is why this one-diskette program is so easy to use.

The program is designed for parents and children to use together. An investment of just five minutes two or three times a week can improve your child's math computational skills dramatically.

Your involvement and generous encouragement in SHORT work sessions will motivate your child to work even harder. The design of the program may reduce the long hours of forcing a child to plow through pages of math homework. The homework won't change, but the speed at which your child attacks it should increase.

Have fun learning to enjoy working with your child at one of the most important challenges he faces--his formal educational development.

PARENT INVOLVEMENT

Now that you've mastered the THREE R MATH HOME SYSTEM, the biggest step is learning how to use it with your children. This program doesn't have a game format, but there are many game type programs available through APX that you can use in conjunction with THREE R MATH HOME SYSTEM. Because of the sequentially designed levels of this program, you can use it throughout your child's elementary school years. You can pinpoint a specific ability level.

One word of caution: DON'T assume this program is a complete math series by itself. Its goal is to improve your child's computational skills, but complete math development includes math application, and mathematical reasoning.

The program is designed for parents to use with children. In this day and age, many children and their parents are too busy to do things together. THREE R MATH HOME SYSTEM can be a start.

There's no getting around learning the basic math computational skills. Some learning can be sugar-coated, but much has to be done in the old-fashioned way: hard work. THREE R MATH HOME SYSTEM puts a little sugar coating on what is frequently very hard work for many children.

Any excitement a child has for this program will quickly die if he's left on his own. The prospect for success rests entirely on parents' involvement with their children. This program, designed by math teachers, has been tested extensively, so you don't have to be a math expert to work on it with your children. What you do need to do is help them with a consistent practice schedule, and all the love and encouragement they need to keep motivated and working.

Maybe you're beginning to suspect that this is going to take hours of your time each week to be effective. The opposite is true. As little as two five-minute sessions per week can pay surprising dividends.

HOW MUCH AND HOW LONG

There are many ways to use THREE R MATH HOME SYSTEM, but the following is easy to use and effective. Start with two

five-minute sessions a week, using a password based on the following:

- - A G C

The two blanks are for the problem code for your child's level. The third letter, A, sets the program for the child to do as many problems as possible. The fourth letter, G, sets the countdown timer to 30 seconds. (You can change this according to your child's competitiveness.) The fifth letter, C, sets the total time for just three minutes.

Your child's goal is to complete as many problems as possible in three minutes. Take a positive and encouraging attitude; your child will probably want you around as he's doing his problems. Don't correct any error your child makes, or criticize what he's doing. The program's prompts tell him when he has given an incorrect answer, and this is enough. You can increase your strength as an ally by giving your child encouragement.

While your child is doing his three-minute sprint, give him your undivided attention. Eliminate (or at least minimize) distractions like newspapers and radios. When the three minutes are up, request a printout of your child's work. Praise his work generously. If he has had some difficulty, do a few of the extra problems at the bottom of the printout with him.

Some parents make bar graphs of the number of problems their children can do. This provides a definite goal to strive for at the next session. Be careful not to put too much pressure on your child and frustrate him.

WHICH LEVEL

The easiest way to find out what kind of problems your child is working on is to ask him to bring his math book home. He may be working on a geometry or measurement section, but you can turn back a few pages to see what type of problems he has been doing. Compare them with the detailed descriptions of the 101 different problem levels in Appendix A of this manual.

To start, drop back several levels from where you think your child is. It's important that your child get most of his problems correct so that he can feel pride in his work. Because of the sequential design of the problem levels, it's easy to progress to the difficult levels in small steps. It's important for your child to get about 85% or more of his answers correct each time.

There's nothing wrong with staying at a certain level for several weeks if it's necessary. Remember that your child should feel that he's succeeding. You can introduce variety by switching frequently, for example, from addition to subtraction. Some children like to drop back to an easy level to show you they can get a lot of correct answers. Encourage this, especially if your child has been having a difficult time at another level.

It's important to keep track of the different problem levels your child has worked and the number of problems he's completed. A child's progress is usually faster if he has a definite goal.

THREE R MATH HOME SYSTEM is designed for more than just remedial work. Because of the variety of levels, children in accelerated programs can also use it. You can also use the program to practice with your hand-held calculator. Generate the problems, figure them out, and enter your answers as quickly as you can. The program checks for accuracy.

There's nothing wrong with letting your child choose his own level. The more he becomes involved with the program, the greater the benefit will be.

USING THE PRACTICE WORKSHEETS

Use the practice worksheets in much the same way as the main program. The most popular type of worksheet is the one with half the answers given. This extra help (from Smedley) offers some encouragement.

Even though the program can generate thousands of problems, it's best not to require your child to do too many. Some children use the worksheets to practice so they can get more right during their three-minute sprint.

PARENTS' SUMMARY

One key to success is giving abundant praise. Most of us don't mind doing a job if we know that someone is watching and giving us a lot of encouragement while we're doing it

Taking time to work with your child regularly is good motivation. The program provides the expertise in teaching math, but only you can provide the love, encouragement, and attention he needs to succeed.

Appendix A: Password codes

* * * * * * PASSWORD CODE KEY * * * * * *

1 - 2	3	4	5
PROGRAM CODES	NUMBER OF PROBLEMS	SPEED PER PROBLEM	TOTAL TIME
First two spaces	A-Not set	A-Not set	A-Not set
	B- 5	B- 2 Sec.	B- 3 Min.
	C- 10	C- 5	C- 5
See Appendix A	D- 15	D- 10	D- 7
	E- 20	E- 15	E- 10
	F- 30	F- 20	F- 12
	G- 40	G- 30	G- 15
	H- 48	H- 60	H- 20

ADDITION

PROBLEM PASSWORD CODE— MINI KEY

PROGRAM	DESCRIPTION
A1	Add two 1 digit numbers (numbers from 1-5)
A2	Add two 1 digit numbers (sums less than 10)
A3	Add two 1 digit numbers (all sums greater than 10)
A4	Add two 1 digit numbers (any sum)
A5	Add a 2 and 1 digit number (no regrouping)
A6	Add a 2 and 1 digit number (all regrouping)
A7	Add a 2 and 1 digit number (mixed)
B1	Add two 2 digit numbers (no regrouping)
B2	Add two 2 digit numbers (all regrouping)
B3	Add two 1 or 2 digit numbers (mixed)
B4	Add two 2 digit numbers (mixed)
B5	Add two 3 digit numbers (no regrouping)
B6	Add two 3 digit numbers (all regrouping)
B7	Add two 3 digit numbers (mixed)
C1	Add two 2 or 3 digit numbers (mixed)
C2	Add three 1 digit numbers (mixed)
C3	Add three 1,2, or 3 digit numbers (mixed)
C4	Add three 1 or 2 digit numbers (mixed)
C5	Add three 2 or 3 digit numbers (mixed)

SUBTRACTION

PROBLEM PASSWORD CODE- MINI KEY

PROGRAM DESCRIPTION

D1.....Subtract a 1 digit from a 1 digit number

D2.....Subtract a 1 digit from a 2 digit no.(no regrouping)

D3.....Subtract a 1 digit from a 2 digit number (regrouping)

D4.....Subtract 7, 8, or 9 from a 2 digit number (mixed)

D5.....Subtract a 1 digit from a 2 digit number (mixed)

E1.....Subtract a 2 digit from a 2 digit no.(no regrouping)

E2.....Subtract a 2 digit from a 2 digit number(regrouping)

E3.....Subtract a 2 digit from a 2 digit number (mixed)

E4.....Subtract a 2 digit from a 3 digit no.(no regrouping)

E5.....Subtract a 2 digit from a 3 digit number(regrouping)

E6.....Subtract a 2 digit from a 3 digit number (mixed)

F1.....Subtract a 3 digit from a 3 digit no.(no regrouping)

F2.....Subtract a 3 digit from a 3 digit number(regrouping)

F3.....Subtract a 3 digit from a 3 digit number (mixed)

F4.....Subtract a 3 digit from a 4 digit number(regrouping)

F5.....Subtract a 3 digit from a 4 digit number (mixed)

F6.....Subtract a 4 digit from a 4 digit number(regrouping)

F7.....Subtract a 4 digit from a 4 digit number (mixed)

MULTIPLICATION

PROBLEM PASSWORD CODE- MINI KEY

PROGRAM DESCRIPTIN

G1.....Multiplication Table 2
G2.....Multiplication Table 3
G3.....Multiplication Table 4
G4.....Multiplication Table 5
G5.....Multiplication Table 6
G6.....Multiplication Table 7
H1.....Multiplication Table 8
H2.....Multiplication Table 9
H3.....Multiplication Table 10
H4.....Multiplication Table 11
H5.....Multiplication Table 12
I1.....Multiplication Tables 2, 3, or 4
I2.....Multiplication Tables 4, 5, or 6
I3.....Multiplication Tables 6, 7, or 8
I4.....Multiplication Tables 7, 8, or 9
I5.....Multiplication Tables 7 - 12
I6.....Multiplication Tables 2 - 12
J1.....Multiply a 2 digit by a 1 digit number (2-5)
J2.....Multiply a 2 digit by a 1 digit number (4-9)
J3.....Multiply a 2 digit by a 1 digit number (any)
J4.....Multiply a 3 digit by a 1 digit number (2-5)
J5.....Multiply a 3 digit by a 1 digit number (4-9)
J6.....Multiply a 3 digit by a 1 digit number (any)
K1.....Multiply a 2 digit by a 2 digit number (10-19)
K2.....Multiply a 2 digit by a 2 digit number (any)
K3.....Multiply a 3 digit by a 2 digit number (10,20,...)
K4.....Multiply a 3 digit by a 2 digit number. (11-19)
K5.....Multiply a 3 digit by a 2 digit number (any)
L1.....Multiply a 3 digit by a 3 digit number (101-199)
L2.....Multiply a 3 digit by a 3 digit number (any)
L3.....Multiply a 4 digit by a 2 digit number (11-19)
L4.....Multiply a 4 digit by a 2 digit number (any)
L5.....Multiply a 4 digit by a 3 digit number (any)

DIVISION

PROBLEM PASSWORD CODE— MINI KEY

PROGRAM	DESCRIPTION		
M1.....	2 . . .	Divided into	2 - 24
M2.....	3 . . .	Divided into	3 - 36
M3.....	4 . . .	Divided into	4 - 48
M4.....	5 . . .	Divided into	5 - 60
M5.....	6 . . .	Divided into	6 - 72
M6.....	7 . . .	Divided into	7 - 84
N1.....	8 . . .	Divided into	8 - 96
N2.....	9 . . .	Divided into	9 - 108
N3.....	10 . .	Divided into	10 - 120
N4.....	11 . .	Divided into	11 - 132
N5.....	12 . .	Divided into	12 - 144
P1.....	2 - 4 .	Divided into	8 - 48
P2.....	4 - 6 .	Divided into	12 - 72
P3.....	6 - 9 .	Divided into	12 - 108
P4.....	9 - 12	Divided into	18 - 144
P5.....	2 - 9	Divided into	8 - 108
P6.....	6 - 12	Divided into	12 - 144
P7.....	2 - 12	Divided into	8 - 144
Q1.....	2 - 4	Divided into	100 - 500
Q2.....	4 - 6	Divided into	100 - 500
Q3.....	6 - 9	Divided into	100 - 500
Q4.....	9 - 12	Divided into	100 - 500
Q5.....	2 - 9	Divided into	100 - 500
Q6.....	6 - 12	Divided into	100 - 500
R1.....	2 - 9	Divided into	100 - 999
R2.....	11 - 15	Divided into	100 - 999
R3.....	20 - 40	Divided into	100 - 999
R4.....	2 - 9	Divided into	1000 - 9999
R5.....	11 - 15	Divided into	1000 - 9999
R6.....	20 - 50	Divided into	1000 - 9999
R7.....	50 - 99	Divided into	1000 - 9999

A D D I T I O N

CODE	PROBLEM	SAMPLE	
A 1	Add two 1 digit numbers (Numbers from 1 to 5)	1 + 1 ---	5 + 5 ---
A 2	Add two 1 digit numbers (Sums less than 10)	1 + 1 ---	9 + 0 ---
A 3	Add two 1 digit numbers (All sums greater than 10)	5 + 6 ---	9 + 9 ---
A 4	Add two 1 digit numbers (Any sum)	2 + 3 ---	8 + 6 ---
A 5	Add a 2 digit and 1 digit number (No regrouping)	11 + 1 ---	98 + 1 ---
A 6	Add a 2 digit and 1 digit number (All regrouping)	11 + 9 ---	99 + 9 ---
A 7	Add a 2 digit and 1 digit number (Mixed)	23 + 5 ---	67 + 8 ---

A D D I T I O N

CODE	PROBLEM	SAMPLE	
B 1	Add two 2 digit numbers (No regrouping)	11 +11 ---	88 +11 ---
B 2	Add two 2 digit numbers (All regrouping)	19 +11 ---	99 +99 ---
B 3	Add two 1 or 2 digit numbers (Mixed)	15 + 3 ---	99 +87 ---
B 4	Add two 2 digit numbers (Mixed)	12 +13 ---	98 +86 ---
B 5	Add two 3 digit numbers (No regrouping)	111 +111 ---	798 +201 ---
B 6	Add two 3 digit numbers (All regrouping)	111 +109 ---	999 +999 ---
B 7	Add two 3 digit numbers (Mixed)	123 +105 ---	999 +888 ---

A D D I T I O N

CODE	PROBLEM	SAMPLE	
C 1	Add two 2 or 3 digit numbers (Mixed)	111 + 11 ---	888 +888 ---
C 2	Add three 1 digit numbers (Mixed)	2 1 + 3 ---	9 9 + 9 ---
C 3	Add three 1,2,or 3 digit numbers (Mixed)	15 3 +211 ----	699 487 +678 ----
C 4	Add three 1 or 2 digit numbers (Mixed)	2 13 + 1 ----	98 86 + 99 ----
C 5	Add three 2 or 3 digit numbers (Mixed)	11 11 + 11 ----	98 201 +989 ----

S U B T R A C T I O N

CODE	PROBLEM	SAMPLE	
D 1	Subtract a 1 digit number from a 1 digit number	2 - 1 ---	9 - 5 ---
D 2	Subtract a 1 digit number from a 2 digit number (No regrouping)	11 - 1 ---	99 - 6 ---
D 3	Subtract a 1 digit number from a 2 digit number (Regrouping)	15 - 6 ---	98 - 9 ---
D 4	Subtract 7, 8, or 9 from a 2 digit number (Mixed)	17 - 7 ---	98 - 9 ---
D 5	Subtract a 1 digit number from a 2 digit number (Mixed)	11 - 1 ---	98 - 9 ---

S U B T R A C T I O N

CODE	PROBLEM	SAMPLE	
E 1	Subtract a 2 digit number from a 2 digit number (No regrouping)	11 - 10 ---	99 - 21 ---
E 2	Subtract a 2 digit number from a 2 digit number (Regrouping)	21 - 19 ---	88 - 39 ---
E 3	Subtract a 2 digit number from a 2 digit number (Mixed)	15 - 12 ---	82 - 59 ---
E 4	Subtract a 2 digit number from a 3 digit number (No regrouping)	132 - 11 ---	958 - 46 ---
E 5	Subtract a 2 digit number from a 3 digit number (Regrouping)	121 - 12 ---	998 - 79 ---
E 6	Subtract a 2 digit number from a 3 digit number (Mixed)	211 - 19 ---	899 - 69 ---

S U B T R A C T I O N

CODE	PROBLEM	SAMPLE	
F 1	Subtract a 3 digit number from a 3 digit number (No regrouping)	111 - 100 ----	999 - 645 ----
F 2	Subtract a 3 digit number from a 3 digit number (Regrouping)	221 - 119 ----	988 - 699 ----
F 3	Subtract a 3 digit number from a 3 digit number (Mixed)	315 - 112 ----	882 - 659 ----
F 4	Subtract a 3 digit number from a 4 digit number (Regrouping)	1132 - 109 -----	8958 - 967 -----
F 5	Subtract a 3 digit number from a 4 digit number (Mixed)	2121 - 111 -----	7998 - 679 -----
F 6	Subtract a 4 digit number from a 4 digit number (Regrouping)	3211 -1219 -----	5897 -1998 -----
F 7	Subtract a 4 digit number from a 4 digit number (Mixed)	1123 -1010 -----	9867 -6989 -----

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
G 1	2's multiplication table	1 × 2 =	12 × 2 =
G 2	3's multiplication table	1 × 3 =	12 × 3 =
G 3	4's multiplication table	1 × 4 =	12 × 4 =
G 4	5's multiplication table	1 × 5 =	12 × 5 =
G 5	6's multiplication table	1 × 6 =	12 × 6 =
G 6	7's multiplication table	1 × 7 =	12 × 7 =

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
H 1	8's multiplication table	1 x 8 ---	12 x 8 ---
H 2	9's multiplication table	1 x 9 ---	12 x 9 ---
H 3	10's multiplication table	10 x 1 ---	12 x10 ---
H 4	11's multiplication table	11 x 1 ---	12 x11 ---
H 5	12's multiplication table	12 x 1 ---	12 x12 ---

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
I 1	2's, 3's, or 4's multiplication tables	1 x 2 ---	12 x 4 ---
I 2	4's, 5's, or 6's multiplication tables	1 x 4 ---	12 x 6 ---
I 3	6's, 7's, or 8's multiplication tables	1 x 6 ---	12 x 8 ---
I 4	7's, 8's, or 9's multiplication tables	1 x 7 ---	12 x 9 ---
I 5	7's through 12's multiplication tables	1 x 7 ---	12 x12 ---
I 6	2's through 12's multiplication tables	1 x 2 ---	12 x12 ---

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
J 1	Multiply a 2 digit number by a 1 digit number (2 - 5)	11 x 2 ---	99 x 5 ---
J 2	Multiply a 2 digit number by a 1 digit number (4 - 9)	11 x 4 ---	99 x 9 ---
J 3	Multiply a 2 digit number by a 1 digit number (Any)	11 x 2 ---	99 x 9 ---
J 4	Multiply a 3 digit number by a 1 digit number (2 - 5)	123 x 2 ----	989 x 5 ----
J 5	Multiply a 3 digit number by a 1 digit number (4 - 9)	101 x 4 ----	789 x 9 ----
J 6	Multiply a 3 digit number by a 1 digit number (Any)	111 x 2 ----	898 x 9 ----

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
K 1	Multiply a 2 digit number by a 2 digit number (10 - 19)	11 x 10	99 x 19
K 2	Multiply a 2 digit number by a 2 digit number (Any)	11 x 11	99 x 99
K 3	Multiply a 3 digit number by a 2 digit number (10,20,30, ...)	121 x 10	898 x 90
K 4	Multiply a 3 digit number by a 2 digit number (11 - 19)	123 x 11	989 x 19
K 5	Multiply a 3 digit number by a 2 digit number (Any)	101 x 10	889 x 99

MULTIPLICATION

CODE	PROBLEM	SAMPLE	
L 1	Multiply a 3 digit number by a 3 digit number (101 - 199)	111 x 101 -----	999 x 199 -----
L 2	Multiply a 3 digit number by a 3 digit number (Any)	123 x 111 -----	898 x999 ----
L 3	Multiply a 4 digit number by a 2 digit number (11 - 19)	2121 x 11 -----	9898 x 19 -----
L 4	Multiply a 4 digit number by a 2 digit number (ANY)	1123 x 11 -----	8989 x 99 -----
L 5	Multiply a 4 digit number by a 3 digit number (Any)	1010 x 110 -----	7889 x 699 -----

D I V I S I O N

CODE	PROBLEM	SAMPLE	
M 1	2's division table	2 /$\overline{2}$	2 /$\overline{24}$
M 2	3's division table	3 /$\overline{3}$	3 /$\overline{36}$
M 3	4's division table	4 /$\overline{4}$	4 /$\overline{48}$
M 4	5's division table	5 /$\overline{5}$	5 /$\overline{60}$
M 5	6's division table	6 /$\overline{6}$	6 /$\overline{72}$
M 6	7's division table	7 /$\overline{7}$	7 /$\overline{84}$
N 1	8's division table	8 /$\overline{8}$	8 /$\overline{96}$
N 2	9's division table	9 /$\overline{9}$	9 /$\overline{108}$
N 3	10's division table	10 /$\overline{10}$	10 /$\overline{120}$
N 4	11's division table	11 /$\overline{11}$	11 /$\overline{132}$
N 5	12's division table	12 /$\overline{12}$	12 /$\overline{144}$

D I V I S I O N

CODE	PROBLEM	SAMPLE
P 1	2-4 divided into 8-48	2 /$\overline{8}$ 4 /$\overline{48}$
P 2	4-6 divided into 12-72	4 /$\overline{12}$ 6 /$\overline{72}$
P 3	6-9 divided into 12-108	6 /$\overline{12}$ 9 /$\overline{108}$
P 4	9-12 divided into 18-144	9 /$\overline{18}$ 12 /$\overline{144}$
P 5	2-9 divided into 8-108	2 /$\overline{8}$ 9 /$\overline{108}$
P 6	6-12 divided into 12-144	6 /$\overline{12}$ 12 /$\overline{144}$
P 7	2-12 divided into 8-144	2 /$\overline{8}$ 12 /$\overline{144}$
Q 1	2-4 divided into 100-500	2 /$\overline{100}$ 4 /$\overline{500}$
Q 2	4-6 divided into 100-500	4 /$\overline{100}$ 6 /$\overline{498}$
Q 3	6-9 divided into 100-500	6 /$\overline{108}$ 9 /$\overline{495}$
Q 4	9-12 divided into 100-500	9 /$\overline{108}$ 12 /$\overline{492}$
Q 5	2-9 divided into 100-500	2 /$\overline{100}$ 9 /$\overline{495}$
Q 6	6-12 divided into 100-500	6 /$\overline{108}$ 12 /$\overline{492}$

D I V I S I O N

CODE	PROBLEM	SAMPLE
R 1	2-9 divided into 100-999	2 /100 9 /999
R 2	11-15 divided into 100-999	11 /110 15 /990
R 3	20-40 divided into 100-999	20 /100 40 /960
R 4	2-9 divided into 1000-9999	2 /1000 9 /9999
R 5	11-15 divided into 1000-9999	11 /1100 15 /9990
R 6	20-50 divided into 1000-9999	20 /1000 50 /9950
R 7	50-99 divided into 1000-9999	50 /1000 99 /9999

APX ATARI Program Exchange
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Review Form

We're interested in your experiences with APX programs and documentation, both favorable and unfavorable. Many of our authors are eager to improve their programs if they know what you want. And, of course, we want to know about any bugs that slipped by us, so that the author can fix them. We also want to know whether our instructions are meeting your needs. You are our best source for suggesting improvements! Please help us by taking a moment to fill in this review sheet. Fold the sheet in thirds and seal it so that the address on the bottom of the back becomes the envelope front. Thank you for helping us!

1. Name and APX number of program.
   Three R Math Home System (208)

2. If you have problems using the program, please describe them here.

3. What do you especially like about this program?

4. What do you think the program's weaknesses are?

5. How can the catalog description be more accurate or comprehensive?

6. On a scale of 1 to 10, 1 being "poor" and 10 being "excellent", please rate the following aspects of this program:

   _____ Easy to use
   _____ User-oriented (e.g., menus, prompts, clear language)
   _____ Enjoyable
   _____ Self-instructive
   _____ Use (non-game programs)
   _____ Imaginative graphics and sound

7. Describe any technical errors you found in the user instructions (please give page numbers).

8. What did you especially like about the user instructions?

9. What revisions or additions would improve these instructions?

10. On a scale of 1 to 10, 1 representing "poor" and 10 representing "excellent", how would you rate the user instructions and why?

11. Other comments about the program or user instructions:

From

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