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# EXPERIENCES WITH THE HAND-HELD CALCULATOR IN TEACHING COMPUTATION, PROBLEM-SOLVING, AND FRACTIONS

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The activities reprinted here have been selected from booklets which are available from the author.

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## ROOTS

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Play a guess-and-test game. Solve these root problems in less than 10 tries.

GAME 1     $\square^2 = 65536$

GAME 2     $\square^3 = 117,649$

GAME 3     $\square^4 = 456,976$

GAME 4     $\square^2 = 53.29$

GAME 5     $\square^3 = 91.125$

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## GAME — GUESS THE FRACTION

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1. Each player writes down a "hidden fraction" in  $\frac{a}{b}$  form, (b less than 10) and computes the decimal name.
2. Players take turns reading the decimal, while the other players guess the original fraction.
3. Correct guesses score 1 point. The first player with 5 points is the winner.

Practice guessing for these decimals:

Calculator display	Guess	Calculator display	Guess
0.5000000	_____	0.4000000	_____
0.1111111	_____	0.2222222	_____
0.3333333	_____	1.1250000	_____
0.3750000	_____	1.6666666	_____
0.1666666	_____	.28571428	_____

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### MULTIPLE STEP PROBLEMS

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- A. If a water faucet drips 18 drips in 10 seconds, how much water will be lost in 24 hours? Which of these guesses would you choose?

1 gallon                      10 gallons  
100 gallons                  1000 gallons



- B. A dollar bill weighs about 1 gram and \$10 bills, \$20 bills, and \$50 bills weigh the same. Of course, you would rather have 100 grams of \$10 bills than 100 grams of one dollar bills, but which of these amounts would you rather have?
- 20 grams of \$10 bills, 40 grams of one dollar bills, and 40 grams of \$20 bills.
  - 10 grams of \$50 bills, 70 grams of one dollar bills, and 20 grams of \$10 bills.
  - 100 grams made up of half one dollar bills, one-fourth \$10 bills, one-fifth \$20 bills and the rest \$50 bills.

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## TARGET

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Partners \_\_\_\_\_  
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Play with a partner.

1. First player punches any numeral on the keyboard and punches "add" key.
2. Second player chooses any digit and punches the "add" key.
3. Play continues until one player chooses to punch the "equal" key.
4. The player scores the difference between the target number and the display.
5. The player with the smallest total score wins.

Game 1	Game 2	Player Scores	
Target 40	Target 40	1. _____	_____
Game 3	Game 4	2. _____	_____
Target 50	Target 50	3. _____	_____
Game 5	Game 6	4. _____	_____
Target 65	Target 75	5. _____	_____
		6. _____	_____

What strategy will win the game?

Can you make up a game for multiplication?