



# TI-73 EXPLORER™

## 7<sup>TH</sup> GRADE MATH ACTIVITY 1:

### MINING WITH FOURS!

#### ACTIVITY OVERVIEW:

In this activity we will

- Investigate order of operations
- Use 4 fours and the four operations to find equivalent expressions for the whole numbers 1 to 20.
- Investigate the effect of parentheses on expressions

4-4*4/4	0
4-4/4*4	0
4+4/4-4	1
4/4-4+4	1
4+4+4+4	16
4-4-4-4	-8

Clear the Home Screen by pressing  $\boxed{2\text{nd}}\boxed{\text{MEM}}$  and the selecting 5: Clear Home. Then press  $\boxed{\text{ENTER}}$ . This will clear all previous entries from the Home Screen.

1: About
2: Check RAM...
3: Check APPs...
4: Delete...
5: Clear Home
6: ClrAllLists
7: Reset...

Your objective is to find expressions using four 4s and the four basic operations with whole number results from 1 to 20. Record the expressions on the right for your teacher as you discover combinations. Use your results to build answers for other target numbers.

1 _____	2 _____
3 _____	4 _____
5 _____	6 _____
7 _____	8 _____
9 _____	10 _____
11 _____	12 _____
13 _____	14 _____
15 _____	16 _____
17 _____	18 _____
19 _____	20 _____

Here is an expression that gives a result of “0”. If you are having a problem coming up with expressions that work, use this expression and change it to find new answers

$$4*4-4*4 \quad 0$$

The four 4s can be separated by at most three operation signs. It is possible to use parentheses to change the order in which a problem will be done. Look at the example to the right. How did the calculator come up with 64? Could you change something inside one parenthesis to get an answer of 8?

$$(4+4)(4+4) \quad 64$$

Sometimes it is easier to solve a problem with an easier problem. If you are trying to get an answer of 20, you know one way to get 20 is  $5*4$ . Find an expression of four 4s that would reduce to  $5*4$ . (HINT at right.)

$$4/4+4 \quad 5$$

HINT: You can “scroll” up your screen and use previous expressions to create new ones. Press the up  $\uparrow$  arrow key until you get to the expression you want. Press **ENTER** and the expression will be pasted on a new line. You can edit it to produce new results.

If you have solved all numbers from 1 to 20 with fours, choose a new number to use. Would it make a difference if you used an even or odd number?