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## Extreme Write It Out (I Do–We Do–You Do format)

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**Step 0:** *Understand the Problem.* Give students a problem to work on. After they've noticed and wondered, have them set up a table to record their information. Have them label the columns and do the calculations to fill out one row of the table, and check that their calculations are correct. Then have them repeat with one more row and this time, write out the calculations that they did, just numbers and symbols for operations, without any words or explanation. Each step should go in the appropriate column.

**Step 1:** *I Do.* Ask for a student volunteer to read their calculation row to you. As they read, write out the calculations without simplifying anything. For example, if they read, "First I guessed 7, then I doubled it to get 14, then I doubled that to get 28, and I doubled again to get 56," you would write " $7 \cdot 2 \cdot 2$ ." Explain how you're never simplifying or doing any of the operations, you're just writing them out.

**Step 2:** *We Do.* Ask another student volunteer to read their calculations and have everyone try to use Extreme Write It Out to expand the calculations. Students share and compare work with a partner, and then several students share their work with the whole group. See who can expand the calculation as fully as possible.

**Step 3:** *You Do.* Students all go back to their original calculation tables and expand their calculations fully. Then they share and compare with a partner.

**Step 4:** *Reflect.* Discuss any patterns or new insights you get from the expanded calculations. For example, could you replace the guessed values with variables? Can you think of a way to write repeated addition using multiplication, or repeated multiplication using exponents?

Name: \_\_\_\_\_

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1. Set up a table to record your information.
2. Label the columns and do the calculations to fill out one row of the table.
3. Check your calculations. Are they correct?
4. Repeat with one more row and this time write out the calculations that you did (just numbers and symbols for operations—no words or explanation).