

Algebra and Representation HW #5

1. Guess the Operation

Perform the following procedure with at least 3 different starting numbers:

Step 1: Pick a number.

Step 2: Add 2 to the number.

Step 3: Multiply the result by 6.

Step 4: Subtract 4.

Step 5: Divide the result by 2.

Step 6: Subtract 4 again to get the final number.

How is the final number related to the original number?

Verify your guess and **explain why** this happens.

2. Book of Matches Trick

Step 1: Take a standard book of matches (20 total matches).

Step 2: Pull out any number between 1 and 9 of these matches.

Step 3: Add up the two digits of the number of matches left over.

Step 4: Pull out this many more.

Explain why the number of matches left in the book must always be 9.