UC Merced Applied Math Problem of the Month

October 2025

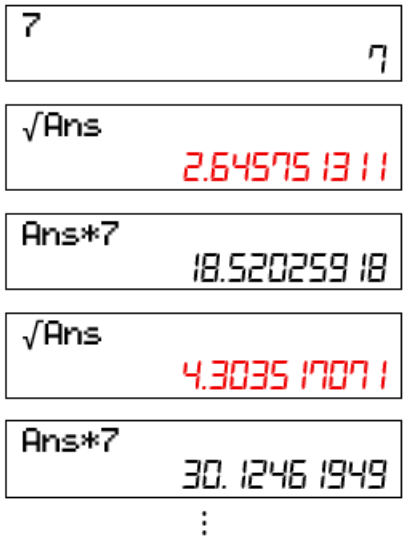
Using a calculator, perform the following operations:

- Select a positive number, denoted by x.
- Step 1. Compute the square root of the number you have. Write down the result.
- Step 2. Multiply the result by x
- Repeat Steps 1 and 2.

What would you get if you kept repeating Steps 1 and 2 infinitely many times?

What would change if you used the nth root ($n \geq 3$) instead of the square root?

Explain your reasoning mathematically.



The figure above shows the results after 2 repetitions with $x = 7$.

To submit your solutions for a chance to win an Amazon gift card, and to find out detailed contest rules,

- scan the QR code, or
- go to https://bit.ly/UCM-POTM