Ponder This

October 2014

<<September **October** November>>

Ponder This Challenge:

What are the last 10 decimal digits of 2^(3^(4^(5^(6^(7^(8^9)))))))?

This challenge is easily handled with Wolfram Alpha which gives the answer: 8170340352

This can also be done using Wolfram Alpha and a sequence of reductions mod 10^10 as follows:

7^(8^9) mod 10^10 = 6763596801

6^6763596801 mod 10^10 = 4204000256

5^4204000256 mod 10^10 = 8212890625

4^8212890625 mod 10^10 = 8212890624

3^8212890624 mod 10^10 = 4919828481

2^4919828481 mod 10^10 = 8170340352