

Quantitative Reasoning 28: The Magic of Numbers

Homework 19

Assigned on March 25
Due at 5:00 p.m. April 6

Please submit problem sets to the boxes outside the Math Department's main office, on the third floor of the Science Center (Room 325).

Reading:

Gross-Harris, Chapter 18

Problems:

Please explain your reasoning and show your work.

- What does Fermat's Theorem say about powers (mod 43)?
 - Compute $3^{126} \pmod{43}$.
 - Compute $2^{286} \pmod{43}$.
- Do the following computations.
 - $5^{1007} \pmod{53}$.
 - $10^{998} \pmod{999}$.
 - $7^{240} \pmod{53}$.