Quantitative Reasoning 28:
The Magic of Numbers

Homework 19

Assigned on Wednesday November 7th
Due at 12 noon Friday November 9th

Please submit problem sets at the end of the relevant lecture, or leave in the box labeled QR28 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.

1. Find all the reciprocals of non-zero values mod 17. *Show your work, whether it is trial and error, various tricks, or the Euclidean algorithm.*

x	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
$1/x$	1															

2. Compute the following powers mod 13. *Show your work.*

   (a) $2^0, 2^1, 2^2, ..., 2^{15}, 2^{16}$.

   (b) $3^0, 3^1, 3^2, ..., 3^{15}, 3^{16}$.