

Quantitative Reasoning 28: The Magic of Numbers

Homework 30

Assigned on May 2

Due at 5:00 p.m. May 4

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 24

Problems:

Please explain your reasoning and show your work.

- Find a multiplicative generator for arithmetic (mod 17).
 - How many numbers (mod 17) have a cube root (note: you don't have to list these numbers, just say how many there are), and how many cube roots does each such number have?
 - How many numbers (mod 17) have a 4th root (note: you don't have to list these numbers, just say how many there are), and how many 4th roots does each such number have?
- Exactly one of the numbers 2, 3, 5 is a multiplicative generator (mod 31). Which is it?