

Quantitative Reasoning 28: The Magic of Numbers

Homework 13

Assigned on March 11
Due at 5:00 p.m. March 14

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 11

Problems:

Please explain your reasoning and show your work.

1. Factor the following into prime numbers:
 - (a) $\binom{20}{7}$; (*Hint*: You do not need to compute the actual number.)
 - (b) 7007;
 - (c) 1991.
2. Today in lecture, Prof. Mazur constructed a table showing the remainder of $A \times B$ divided by 3 given the remainders of both A and B when divided by 3. Construct an analogous table for 5. (That is, given the remainder of A and B divided by 5, determine the remainder of $A \times B$ divided by 5, for all possible cases.)