

Quantitative Reasoning 28: The Magic of Numbers

Homework 8

Assigned on Friday October 3rd
Due at 12 noon Monday October 5th

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 6

Problems:

Please explain your reasoning and show your work.

1. (a) Express $\binom{7}{4} + \binom{7}{5}$ as a single binomial coefficient.
(b) Express $\binom{9}{4} + \binom{9}{3} + \binom{10}{3}$ as a single binomial coefficient.
2. Consider the first 7 rows of Pascal's triangle (i.e. Pascal's triangle up to and including the row 1 6 15 20 15 6 1).
 - (a) If you choose a random entry from this part of Pascal's triangle, what is the probability that it's a 1?
 - (b) If you choose a random entry from this part of Pascal's triangle, what is the probability that it is even?