Problems ♠–13
Due in DSC 235 by 12 noon, Friday, April 20, 2018

Problem A: Let a_n be the number written with 2^n nines. For example, $a_0 = 9$, $a_1 = 99$, $a_2 = 9999$. Let $b_n = \prod_{i=0}^{n} a_i$. Find the sum of the digits of b_n.

Problem B: Show that for each natural number n,
$$\sum_{i=1}^{n} \frac{1}{i} \leq 1 + \ln(n).$$