

MATH 24
Homework 1
Assigned Monday, March 29.
Due Friday, April 2.

Problem 1 Prove the following formula:

$$\sum_{i=1}^n i^2 = \frac{n(n+1)(2n+1)}{6}.$$

Problem 2 Prove that every natural number greater than or equal to 5 can be written as the sum of twos and threes.

Problem 3 Prove that for each even n we have

$$\left(1 - \frac{1}{2}\right) \left(1 + \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \cdots \left(1 - \frac{1}{n}\right) = \frac{1}{2}.$$