

MAT 146, Spring 2019 Homework Assignment 6

Due before the start of the class on Wednesday, May 29

Section 3.19: 20. Find the largest integer that is *not* of the form $6x + 10y + 15z$ where x, y, z are nonnegative integers. Prove that your answer is correct, that is, your number is not representable in this form, and that every larger integer is so representable.

A. Define a sequence a_n as follows: $a_n = 1$ if n cents can be changed using 3- and 4-cent coins only, and $a_n = 0$ otherwise. Find the closed formula for the generating function $\sum a_n x^n$.

B. Generalizing the previous problem, let p and q be two coprime integers. Let $a_n = 1$ if n cents can be changed using p - and q -cent coins only, and $a_n = 0$ otherwise. Find the closed formula for the generating function $\sum a_n x^n$.

C. Find the generating function for the number of partitions where all parts are divisible by 7.

The homework must be legible, and written in connected sentences that explains what you are doing. Just the answer (whether correct or not) is not enough. Please put your name and section number on every page and staple the pages together. Homework should be handed in on time, late homework will not be graded.