

**MATH 3012-QHS: Applied Combinatorics**  
**Fall 2020**  
**Worksheet 3**

**Name:** \_\_\_\_\_

**Due Date: Every Tuesday 11:59 pm**

**Problem 1.** How many positive integers less than or equal to 1000 are divisible by none of 3, 8, and 25?

**Problem 2.** Find the coefficient on  $x^{10}$  in each of the generating functions  $(1 + x)^{12}$ ?

**Problem 3.** Solve the recurrence equation  $r_{n+2} = r_{n+1} + 2r_n$  if  $r_0 = 1, r_2 = 3$ ?