

Quiz #3

Name: SSN: Row:

Instructions: Do *ONLY* **four** of the following questions. **Circle** the questions which you want to be graded and **cross out** those which you do **not** want to be graded.

NOTE: *If you do not follow the instructions above, you may lose some points.*

Question 1: (5 points) How many six-digit decimal numbers with no repetitions start with 57 or 75?

Question 2: (5 points) If repetitions are not allowed, what is the number of seven-digit odd decimal numbers?

Question 3: (5 points) How many eight-digit decimal strings read the same from either side?

Question 4: (5 points) Let $f : \mathbb{N} \times \mathbb{N} \rightarrow \mathbb{Z}$ be defined by

$$f(m, n) = m^2 - 2n + 5.$$

Prove by a counterexample that f is not one-to-one.

Question 5: (5 points) In how many ways can 5 red (*identical*) balls and 7 blue (*identical*) balls be distributed into 20 distinct boxes with at most one ball to a box?

Question 6 (5 points) Find the coefficient of x^{13} in the binomial expansion of $(3 + 2x)^{20}$.