

General Round

45 minutes

Please put all answers on the provided answer sheet, units are not required.

- 1) How many distinctive 5 letter combinations can be made using the letters of EXILE? For example, XILEE would be one possible combination. (1 point)
- 2) On Cornelia Street there are 1,313 apartments. 871 apartments are painted blue, 351 apartments have new Maseratis, and 329 apartments are not blue nor have new Maseratis. How many apartments are painted blue AND have new Maseratis? (1 point)
- 3) If 2 devils each roll a fair 6-sided dice at the same time, what is the probability that the sum of the two dies is greater than 6? (1 point)
- 4) What is the last digit of 19^{89} ? (2 points)
- 5) Taylor Swift is driving away in a getaway car. The car has 3 possible models, 4 possible colors, and 5 possible attachments. How many possible getaway cars could Taylor Swift drive if each car could have only one attachment? (1 point)
- 6) Taylor Swift is building a house of cards after a full on rainstorm. Her house of cards uses a standard, 52-card deck. What is the probability that the first two cards she picks are face card (Jack, Queen, or King)? (1 point)
- 7) Karli writes out the first 13 multiples of 13, starting with $1 \times 13 = 13$. She then erased all the multiples that included the digit 2. How many multiples are left? (1 point)
- 8) The amount of messages in a bottle that Taylor Swift has can be expressed as the value of $(2 + 4 + 6 + 8 + \dots + 2022) - (1 + 3 + 5 + 7 + \dots + 2021)$. How many messages in a bottle does Taylor Swift have? (2 points)
- 9) In an Indie record much cooler than mine, there is a 30 second transition between each song. If someone listens to the indie record with 13 songs, that lasts 90 minutes (including the transitions), what fraction of the time spent listening to the album is transition? (1 point)
- 10) A box contains five love stories, numbered 1, 2, 3, 4, and 5. Three love stories are selected randomly without replacement from the box. What is the probability that 4 is the largest value selected? (2 points)