

COT 3100 Quiz #3 (Version A): Probability (11/18/2024)

Last Name: _____ **First Name:** _____

Circle Recitation: 8:30 am

9:30 am

1) (10 pts) Minnie's Mini Lottery works as follows: you buy a ticket for \$2. On your ticket, you choose a three-digit code, where each digit from 0 – 9 is possible for each slot. (The possible codes range from 000 to 999.) If you match no digits, you get no money. If you match exactly 1 digit, you get \$1. If you match exactly 2 digits, you get \$20, and finally, if you match all 3 digits, you get \$717. How much money, in dollars, is the expected prize, for buying one ticket? (Hint: The answer should be in between \$0 and \$2 since all lotteries are a bad deal!)

2) (5 pts) Jenna picks a random integer in between 1 and 4, inclusive. Youssef picks a random integer in between 1 and 6, inclusive. What's the probability that Jenna's integer is strictly greater than Youssef's integer? Express the answer as a fraction in lowest terms.

3) (9 pts) If A and B are events and $p(A) = 3/5$, $p(A \cap B) = 1/3$, $p(A | B) = 1/2$ calculate $p(B)$, $p(B|A)$ and $p(B | \bar{A})$. Express all answers as fractions in lowest terms.

$p(B) = \underline{\hspace{2cm}}$, $p(B|A) = \underline{\hspace{2cm}}$, $p(B | \bar{A}) = \underline{\hspace{2cm}}$

4) (6 pts) Mikey is taking a matching quiz with 5 items on it. Unfortunately, Mikey didn't study and he completely guesses the answers, knowing that each of the five words will match to a different definition of the five given. What is the probability that he gets precisely 3 of the definitions correct? (We assume he matches each word to a unique definition listed.) Express your answer as a fraction in lowest terms.
