

COT 3100 Quiz #2 (Version B): Counting (7/10/2026)

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

Circle Recitation: 3:00 pm (Lab 11)

6:00 pm (Lab 14)

1) (5 pts) **There are 12 girls and 8 boys in a class.** Answer the following counting questions about the class. Please give an integer answer for questions a, b and c. You may leave your answer for questions d and e in powers, factorials and combinations.

a) (1 pt) One student must be chosen as class president. In how many ways can the president be chosen?

b) (1 pt) One boy and one girl must be chosen to represent the class at the school wide mixed-doubles ping-pong tournament. How many possible different teams could represent the class?

c) (1 pt) The teacher creates teams of 2 with one girl and one boy, but these leaves some girls left out, who are all placed on their own team. How many girls are on this team?

d) (1 pt) The teacher must line up the class. In how many different orders can she line up the students in the class?

e) (1 pt) A teacher asks each student whether or not they like pizza. Each student answers either "YES" or "NO". The chalkboard shows that exactly 13 students said yes. How many possible subsets of students could have said "YES", based on this information?

2) (5 pts) How many permutations of the letters in PEZDISPENSER have no consecutive vowels? Please leave your answer in powers, factorials and combinations.

3) (10 pts) The girl scouts are selling two different treats for a fundraiser. One is a box of thin mints, priced at \$4 per box and the other is a larger popcorn/m&m mix priced at \$10 per package. Travis really enjoys both types of treats and has spent a total of \$998 on x boxes of cookies and y packages of popcorn. How many possible ordered pairs (x, y) of non-negative integers are there?

4) (5 pts) The Miami Dolphins scored 5 touchdowns (with extra point) and 3 field goals in a game. A touchdown with an extra point is worth 7 points and a field goal is worth 3 points. One possible sequence of scores for the team over the course of the game is 7, 14, 21, 28, 35, 38, 41, and 44. (This corresponds to scoring all five touchdowns first, followed by 3 field goals.) Based on this information, how many possible sequences of scores for the team over the course of the game are possible?
