Advanced Algebra | Final Exam Review | Name:

Spring 2008 | Chapter 10

Show all work on a separate sheet.

1. Find the probability of each event.

a) A blue card is drawn at random from a bag containing 3 white cards, 2 yellow card, and 11 blue cards.

b) A card chosen at ransom from a standard deck is not a 2 or a king.

c) A letter chosen at random from the alphabet is not one of the letter in Gusty.

2. Find the number of license plate numbers (with no letters or digits excluded) for each of the following conditions.

a) 5 digits

b) 3 letters followed by 2 digits

c) 1 digits followed by 3 letters followed by 3 digits.

3. Find the number of permutation of the first 7 letters of the alphabet for each situation.

a) taking all 7 letters at a time

b) taking 5 letters at a time

c) taking 4 letters at a time

d) taking 3 letters at a time

4. Find the number of permutations of the letters in each word.

a) mathematics

b) calculus

c) algebra

5. Representatives from 8 schools are represented at a school newspaper workshop. In how many different ways can the 8 representatives be seated around a circular table?

6. Combinations

Find the number of ways in which each committee can be selected.

a) A committee of 5 people from a group of 8 people.

b) A committee of 2 people from a group of 16 people.

c) A committee of 8 people from a group of 15 people.

7. Determine whether each situation involves a permutation or a combination.

a) A high school offers 5 foreign language programs. In how many ways can a student choose 2 programs?

b) In how many ways can 20 members be chosen from a 60-member chorus to sing the national anthem at a graduation ceremony?

c) In how many ways can a captain, co-captain, and team manager be chosen from among 18 members of a volleyball team?

d) First- through fourth-place prizes are to be awarded in an essay contest. In how many ways can the winners be selected from among 125 entries?

8. A card is chosen at random from a standard 52-card deck. Tell whether events A and B are inclusive or mutually exclusive. Then find P(A or B).

a) A: The card is a heart.

B: The card is an 8.

b) A: The card is a number less than 5.

B: The card is a jack, a king, or a queen.

c) A: The card is a 2 or a 3.

B: The card is not a heart.

9. A spinner is divided into 8 congruent regions numbered 1 through 8. The spinner is spun once. Find the probability of each event.

a) The number is even or divisible by 3.

b) The number is odd or greater than 7.

c) The number is lees than 2 or greater than 6.

d) The number is odd or divisible by 4.

10. Events D, E, F and G are independent, and P(D) = 0.2, P(E) = 0.1, P(F) = 0.4, and P(G) = 0.25. Find the probability of each combination of events.

a) P(D and E)

11. A bag contains 3 white marbles, 2 red marbles, and 7 blue marbles. A marble is picked at random and is replaced. Then a second marble is picked at random. Find each probability.

12. A number cube is rolled twice. On each roll, the number on the top face is recorded. Find the probability of each event.

a) The first number is greater than 5 and the second is less than 3.

b) P(D and F) c) P(E and F) d) P(D and E and F)	a) Both marbles are blue. b) The first marble is white and the second marble is red. c) The first marble is white and the second marble is not white. d) Neither marble is red.	b) Both numbers are greater than 4. c) The first number is even and the second number is odd. d) Both numbers are less than 2. e) Neither number is greater than 4.
13. A number cube is rolled, and two coins are tossed. Find the probability of each event. a) The number on the cube is 2 and both coins are heads. b) The number on the cube is even, one coin shows heads, and one shows tails. c) The number on the cube is greater than 2 and the coins show different sides.	14. Two number cubes are rolled, and the first cube shows a 6. Find the probability of each event below. a) The sum is 9. b) Both numbers are even c) The sum is greater than 8. d) The sum is greater than 8 and less than 12.	15. A spinner is divided into 8 congruent regions numbered 1 through 8. The spinner is spun once. Let A be the event "even" and let B be the event "6". Find each of the following probabilities. a) P(A) b) P(B) c) P(A and B) d) P(A or B) e) P(A|B) f) P(B|A)