

NAME: \_\_\_\_\_

- (1) On day one we collected data regarding your soda of preference (coke or pepsi) and your favorite kind of cookie. The table below is a summary of this data.

		soda		
		c	none	p
cookie	choc	1	0	0
	choc chip	10	0	7
	m&m	0	0	2
	neko	0	1	0
	none	1	0	0
	oatmeal raisin	1	0	0
	oreo	2	0	1
	peanut butter	1	0	0
	sugar	1	1	3

- Choose a random student from our class.
- Find  $P(\text{he prefers oreos})$
  - Find  $P(\text{he prefers coke})$
  - Find  $P(\text{he prefers oreos, given that he prefers coke})$
  - Find  $P(\text{he prefers coke, given that he prefers oreos})$
  - Are the events “prefers oreos” and “prefers coke” disjoint? Explain your answer.
  - Are the events “prefers oreos” and “prefers coke” independent? Explain your answer.

(2) Suppose that you forget to study for a six question multiple-choice quiz. For this quiz, each question has four possible answers. Your strategy is to guess randomly. Your correctness on one question is independent of your correctness on the other questions.

(a) What is the probability that you get all 6 questions wrong?

(b) What is the probability that you get questions 1,2,3 right and questions 4,5,6 wrong?

(c) What is the probability that you get question 1 right or that you get question 5 right?

(3) Below is a Venn diagram. The box represents the sample space, and the two circles represent events A and B. The diagram contains 4 different regions. Assume that:

- $P(A) = .5$ ,
- $P(B^c) = .3$ , and
- $P(A|B) = .4$ .

In each region, write the probability of being in that region.

