Exam Review Probability

1. G and H are mutually exclusive events. P(G) = 0.5 P(H) = 0.3

a. Explain why the following statement MUST be false: P(H|G) = 0.4.

b. Find P(H OR G).

c. Are G and H independent or dependent events? Explain in a complete sentence

2. Now

P(G) = 0.5 P(H) = 0.3 and P(G and H) = 0.15

a. Find P(H OR G).

b. Find P(H|G)

c. Find P(G|H)

d. Find P(G and not H)

e. Are events H and G mutually exclusive, Explain.

4.

In a box of assorted cookies, 36% contain chocolate and 12% contain nuts. Of those, 8% contain both chocolate and nuts. Sean is allergic to both chocolate and nuts.

    a. Find the probability that a cookie contains chocolate or nuts (he can't eat it).

    b. Find the probability that a cookie does not contain chocolate or nuts (he can eat it)

6. According to the American Pet Products Manufacturers Association (APPMA) 2003-2004 National Pet Owners Survey, 39% of U.S. households own at least one dog and 34% of U.S. households own at least one cat. Assume that 60% of U.S. households own a cat or a dog.

a. What is the probability that a randomly selected U.S. household owns neither a cat nor a dog?

b. What is the probability that a randomly selected U.S. household owns both a cat and a dog?

c. What is the probability that a randomly selected U.S. household owns a cat if the household has a dog?

8. A survey of an introductory statistics class in Autumn 2016 asked students whether or not they ate breakfast the morning of the survey. Results are as follows:

		Breakfast		
		Yes	No	Total
Sex	Male	66	66	132
	Female	125	74	199
	Total	191	140	331

a. What is the probability that a randomly selected student is female?

b. What is the probability that a randomly selected student ate breakfast?

c. What is the probability that a randomly selected student is a female who ate breakfast?

d. What is the probability that a randomly selected student is female, given that the student ate breakfast?

e. What is the probability that a randomly selected student ate breakfast, given that the student is female?

At Least 1:

28.[*] **Jumper-Cables:** Assume that 25% of all car owners have jumper-cables in the car. You are stranded in a parking lot with a dead battery and there are 3 other people getting into different cars nearby.

(a) What is the probability that all three people have jumper-cables in the car?

(b) What is the probability that at least one of the three people have jumper-cables in the car?