MA 105 Addition Rule Worksheet

MA 105-03,04, Maj. Givler

Name: _____

Directions: Answer each question below. You must show all work in order to receive full credit. Carefully indicate your answer. You may work individually, with a partner, or in a small group; please indicate who you worked with. You may use your textbook or class notes as needed. Point values for each question are indicated in the margins.

[3] 1. Determine if each of the following pairs of events is disjoint or not.

(a) Randomly selecting a male, and randomly selecting a nurse

(b) Randomly selecting a car from the assembly line and it's free of defects, and randomly selecting a car from the assembly line and the power windows don't work.

(c) A response on a voluntary survery from someone who has a cat, and a response on a voluntary survey from someone who has a dog.

[2] 2. A certain group of people has a 0.56% rate of red-green color blindness. If a person is randomly selected from that group, what is the probability that they are not red-green color blind?

[6] 3. Use the table of results from 1000 pre-employment drug screening tests to answer the questions below.

	Positive Test Result	**Negative Test Result**
Subject uses drugs	99	8
Subject does not use drugs	82	811

(a) What is the probability of a person from this group having a positive test result?

(b) What is the probability of a person from this group being a drug user?

(c) What is the probability of a person from this group being a drug user or having a positive test result?

(d) What is the probability of a false positive?

(e) What is the probability of a person having a negative test result or not being a drug user?

(f) Given that a person doesn't use drugs, what is the probability that they have a positive test result?

[9] 4. Use the given table of results about people who were included in a survey to answer each of the questions below.

	Age					
	18–21	22–29	30–39	40–49	50–59	60+
Responded	73	255	245	136	138	202
Refused	11	20	33	16	27	49

(a) What is the probability that a selected person refused to answer?

(b) What is the probability that a selected person refused to answer or was 60 or older?

(c) What is the probability that a selected person was in the 18–21 age range?

(d) What is the probability that a selected person responded and was in the 22–29 age range?

(e) What is the probability that a selected person was younger than 22 or was older than 59?

(f) What is the probability that a selected person was younger than 22 or was older than 59 or refused to answer?

(g) What is the probability that a person was younger than 22 and responded?

(h) Given that a person is in the 30–39 age range, what is the probability that they refused to answer?

(i) Given that a person responded, what is the probability that they are 60 or older?

[1] 5. Complete the following statement. P(A or B) indicates _____.

A. the probability that in a single trial, event A occurs, event B occurs, or they both occur.

B. the probability that event A or event B does not occur in a single trial.

C. the probability that event A occurs in one trial followed by event B in another trial.

D. the probability that A and B both occur in the same trial.