

Name _____

Date _____

Advanced Algebra

Unit 7 Probability- Assignment #1

Highest level of Education	Women	Men	Total
8 th grade or less	35	46	81
High School Graduate	232	305	537
Some College	419	374	793
Bachelor's Degree	539	463	1002
Graduate or professional Degree	377	382	759
Total	1602	1570	3172

a) What is the probability that a randomly chosen person from the survey group is a man?

$$\frac{1570}{3172} = \boxed{.495}$$

b) What is the probability that the highest level of education completed by a randomly chosen person from the survey group is a bachelor's degree?

$$\frac{1002}{3172} = \boxed{.316}$$

c) What is the probability that a randomly chosen woman has earned a bachelor's or graduates degree?

$$\frac{539+377}{1602} = \boxed{.546}$$

d) What is the probability that a randomly chosen person whose highest level of education is a high school man?

$$\frac{305}{3172}$$

2) Suppose that a bag contains five green marbles, three blue marbles, six yellow marbles, and four white marbles. Maria shakes up the bag to mix the marbles and then draws one marble out of the bag.

a) What is the probability that the marble Maria draws is blue?

$$\frac{3}{18}$$

b) What is the probability that the marble is white?

$$\frac{4}{18}$$

c) What is the probability that the marble is green or yellow?

$$\frac{11}{18}$$

d) What is the probability that the marble is neither blue nor yellow?

$$3+6 = \frac{9}{18} \quad \frac{18}{18} - \frac{9}{18} = \frac{9}{18} = \boxed{.5}$$

3) Find each probability.

a) If a meteorologist says that there is a 35% chance of snow tomorrow, what is the probability that it will not snow?

$$1 - .35 = .65 \text{ no snow}$$

b) If you roll a die once, what is the probability that you will get higher than 2?

$$3 \ 4 \ 5 \ 6 \quad \frac{4}{6} = \boxed{.667}$$

Check with 3 other people and see how many times they were able to start the game

Write them down here 2 6 5

b) If you rolled the die 20 times show how you would find the expected value for the number of times you might get a 6.

(probability) * # of Trials $\frac{1}{6} \times 20 \approx 3.3$

c) How does this match your experiment?

d) Show how the theoretical probability and the experimental probability relate by using your experiment and dividing by the number of trials and what you know the theoretical probability is of a die.

$\frac{2}{20} = .1 / .17$

I can find probabilities:

4) Each day in class your teacher randomly calls on 5 students in your class of 30 students. What is the probability you will be called on today?

$\frac{5}{30} = .1667$

b) If 2.5% of items produced are defective, then what is the probability that a randomly selected item will not be defective?

$1 - 2.5 = 97.5\%$ Complement
 $1 - .025 = .975$

c) What is the probability that the sum of two tossed dice will not be a 6?

$\frac{36 - 5}{36} = \frac{31}{36}$

5) For the following questions you are rolling 2 die. The roll (1,5) is different from a (5,1). Find the probability of each event

	1,1	2,1	3,1	4,1	5,1	6,1
a) The dice sum to 9	1,2	2,2	3,2	4,2	5,2	6,2
b) the dice sum to 6	1,3	2,3	3,3	4,3	5,3	6,3
c) The dice have a difference of 1	1,4	2,4	3,4	4,4	5,4	6,4
	1,5	2,5	3,5	4,5	5,5	6,5
	1,6	2,6	3,6	4,6	5,6	6,6

$\frac{2}{36}$

d) The sum of the dice is 6 and the difference is 2. This would be underlining and circling

e) The sum of the dice is AT MOST 5 $\frac{10}{36} = .28$