

Name _____

Date _____

Advanced Algebra

Unit 7 Probability- Assignment #2

1) You spin a die and a coin. Make a list of the outcomes

2) You spin 2 dice. Make a list of the outcomes

3) Suppose you are playing a board game for which you need to roll a 6 on a die before you can start playing the game....

a) Do this experiment 20 times on your calculator. Math PRB #5 (1,6)

Theoretical Probability $\frac{1}{6}$
17%

Roll Number	Outcome	Can you start yes/no
1	6	yes
2	4	NO
3	3	NO
4	3	NO
5	5	NO
6	6	yes
7	2	NO
8	5	NO
9	3	NO
10	3	NO
11	2	NO
12	1	NO
13	3	NO
14	4	NO
15	1	NO
16	4	NO
17	1	NO
18	4	NO
19	2	NO
20	1	NO

How many times were you able to start the game 2

$\frac{2}{20}$ $\frac{6}{20}$ $\frac{6}{20}$ $\frac{5}{20}$ $\frac{6}{20}$ $\frac{4}{20}$ $\frac{6}{20}$ $\frac{2}{20}$ $\frac{6}{20}$ $\frac{5}{20}$
 0.1 0.30 0.30 0.25 0.3 0.2 0.3 0.1 0.3 0.25

Experimental Probability

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 $\frac{1}{6} \times 20 = 3.3$

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.

$$\frac{2}{20} = 0.1 / 0.17$$

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?

$$\frac{5}{30} = 0.1667$$

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

$$1 - 2.5 = 97.5\% \text{ Complement}$$

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
d) The sum of the dice is 6 and the difference is 2. This would be underlining and circling	1,6	2,6	3,6	4,6	5,6	6,6

e) The sum of the dice is AT MOST 5 $\frac{10}{36} = 0.28$