Secondary II-Unit 3.3 Probability Notes   Name _____

Day 1: Set Notation and Vocab   Date _____ Period _____

Working with Sets

A _____ is a well-defined collection of distinct objects. Each object in a set is called an **element** of the set. A set is often denoted by writing the elements in braces. { }

The set with **no elements** is an _____ _____ denoted by Ø.

The set of **all elements** under consideration is the _____ _____,
denoted by U.

Identifying the number of elements in a set is important for calculating probabilities.

Set	Set Notation	Number of elements in the Set
Universal Set (U) is all natural numbers less than 10.	$U =$	$n(U) =$
Set A is the set of prime numbers less than 10.	$A =$	$n(A) =$
Set B is the set of even natural numbers less than 10.	$B =$	$n(B) =$
Set C is the set of natural numbers less than 10 that are a multiple of 4.	$C =$	$n(C) =$

Term	Notation	Example	Venn Diagram
A _____ exists when every element of one set is part of another set.	$C \subset B$	all elements of set C are part of set B	
An _____ of sets is the similar elements in both sets.	$A \cap B$	are the elements in set A **AND** set B	
A _____ of sets is the set of all the elements in either set.	$A \cup B$	are the elements in set A **OR** set B	
A _____ of a set is the set of all elements in the universal set (U) that are not in the set.	A^c	are the elements **NOT** in set A	

Calculating Probabilities

A _____ _____ is an activity involving chance.

Each possible result of the experiment is called an _____.

A set of outcomes is known as an _____.

_____ is measuring how likely an event is to occur when all the outcomes of an experiment are equally likely. For example: The probability that event A would occur in the sample space S is given by the following.

$$P(A) = \frac{number\ of\ outcomes\ for\ the\ event}{number\ of\ outcomes\ in\ the\ sample\ space} = \frac{n(E)}{n(S)}$$

Your grocery basket contains one bag of each of the following items: oranges, green apples, green grapes, broccoli, cauliflower, carrots, and spinach. You are getting ready to transfer the items from your basket to the conveyer belt for check-out. Event A is picking a bag containing a vegetable first. Event B is picking a bag containing a green food first. All bags have an equal chance of being picked first.

1. What is the universal set for your grocery basket?
   $U =$

2. What is set A? $A =$

   $P(A) =$

3. What is the set $A \cup B$?

   $P(A \cup B) =$

4. What is the set $A \cap B$?

   $P(A \cap B) =$

The numbers 1 through 30 are placed in a hat to determine the order in which students will give an oral report. Event A is being one of the first 10 students to give their report. Event B is picking a multiple of 6. If you pick first, calculate each of the following:

5. What is set A?   6. What is set B?

7. P(A)=   8. $P(A \cup B) =$

9. $P(A \cap B) =$ 10. P(A^C)=

In the previous examples, you may have noticed that the probability of an event occurring and the probability of the event not occuring (the _____ of an event), have a sum of 1. Meaning that: