Math 2
Unit 6 Day 2 Notes – Simple Probability

Name: Key
Date: _____

Theoretical Probability of Events $P(E)$	$\frac{\text{what we want}}{\text{total possible outcomes}}$
$P(A^C)$	the complement of the succesful event

Example: An experiment consists of tossing three coins. $2^3 = 8$ outcomes

1. List the sample space for the outcomes of the experiment.
   HHH THH TTH HHT HTT HTH THT TTT

Find the following probabilities:

"And" → Multiply

"OR" → Add (sometimes subtract)

2. P(all heads) = $1/8$
3. P(two tails) = $2/8 = 1/4$
4. P(no heads) = $1/8$
5. P(at least one tail) = $7/8$
6. How could you use complements to find #5? P(no heads^C)

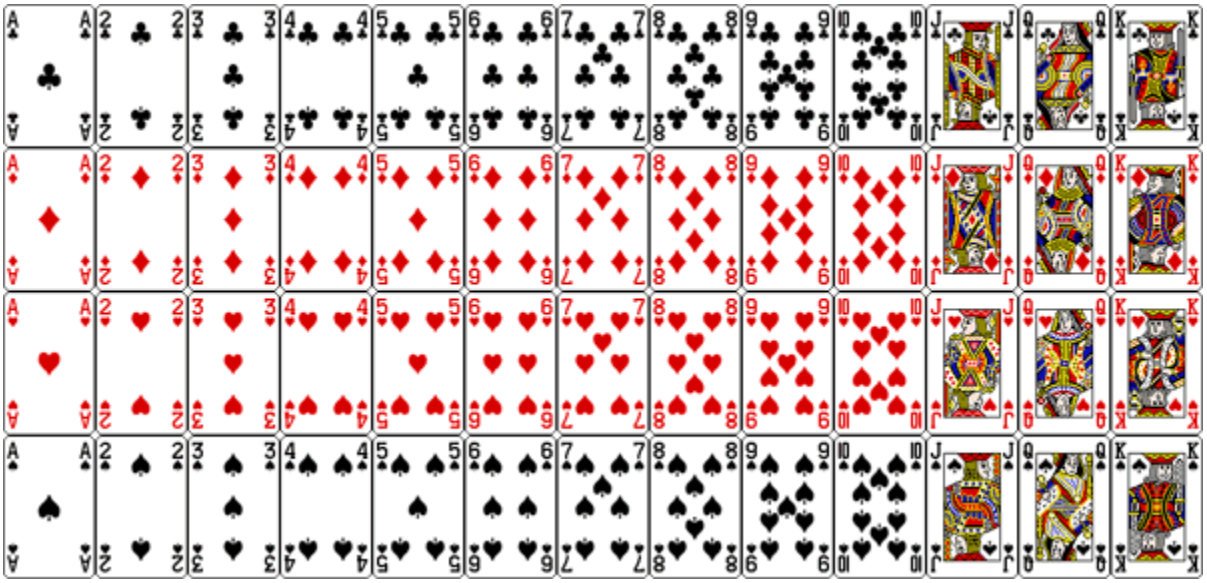
Example: A bag contains six red marbles, four blue marbles, two yellow marbles and three white marbles. One marble is drawn at random.

7. List the sample space for this experiment.
   RRRRRRBBBBYYWWW

Find the following probabilities:

8. P(red) = $6/15 = 2/5$
9. P(blue or white) = $7/15$
10. P(not yellow) = $13/15$

Note that we could either count all the outcomes that are not yellow, or we could think of this as being 1-P(yellow). Why is this? They are complements of each other



Example: A card is drawn at random from a standard deck of cards. Find each of the following:

1. P(heart) = $13/52 = 1/4$
2. P(black card) = $26/52 = 1/2$
3. P(2 or jack) = $8/52 = 2/13$
4. P(not a heart) = $39/52 = 3/4$

Example: Given the Venn Diagram below, find the probability of the following if a student was selected at random:

5. P(blonde hair) = $13/26 = 1/2$
6. P(blond hair and blue eyes) = $8/26 = 4/13$
7. P(blonde hair or blue eyes) = $7/26$
8. P(not blue eyes) = $16/26 = 8/13$