

Name \_\_\_\_\_ Date: \_\_\_\_\_ Per: \_\_\_\_\_

## Compound Events

**Watch out for  
the notation!**

**OR:  $\cup$**

**AND:  $\cap$**

Addition Rule:  $P(A \text{ or } B) = P(A \cup B) = P(A) + P(B) - P(A \cap B)$

1. Two Dice Experiment: Suppose you roll a red die and a white die. Complete the table to show the possible outcomes and their sums – This shows your sample space!

*\*\*Note: (3,2) and (2,3) are two different outcomes.*

White →	1	2	3	4	5	6
Red ↓						
1	(1, 1) = 2	(1, 2) = 3	(1, 3) = 4	(1, 4) = 5	(1, 5) = 6	(1, 6) = 7
2	(2, 1) = 3	(2, 2) = 4	(2, 3) = 5	(2, 4) = 6	(2, 5) = 7	(2, 6) = 8
3	(3, 1) = 4	(3, 2) = 5	(3, 3) = 6	(3, 4) = 7	(3, 5) = 8	(3, 6) = 9
4	(4, 1) = 5	(4, 2) = 6	(4, 3) = 7	(4, 4) = 8	(4, 5) = 9	(4, 6) = 10
5	(5, 1) = 6	(5, 2) = 7	(5, 3) = 8	(5, 4) = 9	(5, 5) = 10	(5, 6) = 11
6	(6, 1) = 7	(6, 2) = 8	(6, 3) = 9	(6, 4) = 10	(6, 5) = 11	(6, 6) = 12

Using the table above to help you find the probability of rolling the following sums:

a.  $P(\text{sum is } 8) = P(8) =$

b.  $P(\text{sum is not } 8) = P(\sim 8) =$

c.  $P(\text{doubles}) =$

d.  $P(\text{not doubles}) = P(\overline{\text{doubles}}) =$

e.  $P(8 \cup \text{doubles}) =$

f.  $P(8 \cap \text{doubles}) =$

g.  $P(10 \cup \text{doubles}) =$

h.  $P(\text{even} \cup 10) =$

i.  $P(7 \cup 11) =$

j.  $P(7 \cap 11) =$

k. Which sum is the most common? \_\_\_\_\_ What is its probability? \_\_\_\_\_

l. Which sum(s) is/are the least common? \_\_\_\_\_ Give the probability. \_\_\_\_\_

### Sample Space for a Standard Deck of Cards

Card/Suit	A	2	3	4	5	6	7	8	9	10	J	Q	K
Heart	A♥	2♥	3♥	4♥	5♥	6♥	7♥	8♥	9♥	10♥	J♥	Q♥	K♥
Diamond	A♦	2♦	3♦	4♦	5♦	6♦	7♦	8♦	9♦	10♦	J♦	Q♦	K♦
Club	A♣	2♣	3♣	4♣	5♣	6♣	7♣	8♣	9♣	10♣	J♣	Q♣	K♣
Spade	A♠	2♠	3♠	4♠	5♠	6♠	7♠	8♠	9♠	10♠	J♠	Q♠	K♠

2. When playing cards with a single deck of cards, you are dealt the first card from the top of a shuffled deck. What is the probability of drawing the following card?

a.  $P(\text{heart}) =$

b.  $P(\text{ace}) =$

c.  $P(\text{king}) =$

d.  $P(\text{face card}) =$

e.  $P(\text{red}) =$

f.  $P(\text{not diamond}) =$

g.  $P(\text{heart} \cup \text{spade}) =$

h.  $P(\text{heart} \cap \text{spade}) =$

i.  $P(\text{heart} \cup \text{ace}) =$

j.  $P(\text{heart} \cap \text{ace}) =$

k.  $P(\text{red king} \cup \text{diamond}) =$

l.  $P(\text{red king} \cap \text{diamond}) =$

3. The spinner shown at the right is to be spun once. Find the following probabilities.

a.  $P(3) =$

b.  $P(\text{Vowel}) =$

c.  $P(3 \cup \text{Vowel}) =$

d.  $P(3 \cap \text{Vowel}) =$

e.  $P(\text{even number} \cap \text{consonant}) =$

f.  $P(\text{even number} \cup \text{consonant}) =$

g.  $P(\text{odd number} \cup \text{prime number}) =$

h.  $P(\text{prime number} \cap \text{even number}) =$

i.  $P(\text{Vowel} \cap \text{not a prime number}) =$

