Table Number:\_\_\_\_\_\_\_\_\_\_ Group Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group Members:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sample Spaces and Events

RECALL:

A **sample space**, *S,* of a probability experiment is the collection of all possible outcomes.

An **event** is any collection of outcomes from aa probability experiment.

For each of the following probability experiments below, list the sample space and the indicated events.

1. EXPERIMENT: Rolling a single fair die
   1. Sample space: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. Event A: Rolling an even number. A= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   3. AC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   4. Event B: Rolling a number greater than three. B= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   5. BC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   6. Event C; Rolling at least a two. C= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   7. CC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   8. Event D: Rolling a number no more than 4. D= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   9. DC= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. EXPERIMENT: Rolling two fair die and consider the sum of the die.
   1. Sample space: (*The table below might help you list all the possible outcomes.)*

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Die 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Die 2 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Die 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Die 2 |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
| Die 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| Die 2 |  |  |  |  |  |  |  |  |  |  |  |  |

* 1. Event A: Rolling a sum of 4:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  2. Event B: Rolling a sum of 10: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  3. Event C: Rolling a sum of 3:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  4. Event D: Rolling a sum greater than 4: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
  5. DC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The following table might help you organize the above data for finding the requested events. List the sums of the two dice. (*Please complete.)*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **1** | **2** | **3** | **4** | **5** | **6** |
| **1** |  |  |  |  |  |  |
| **2** |  |  |  |  |  |  |
| **3** |  |  |  |  |  |  |
| **4** |  |  |  |  |  |  |
| **5** |  |  |  |  |  |  |
| **6** |  |  |  |  |  |  |

1. EXPERIMENT: A couple decides to have two children. Using “B” for boy and “G” for girl, list all the possible outcomes of boys and girls.
2. EXPERIMENT: A couple decides to have three children. Using “B” for boy and “G” for girl, list all the possible outcomes of boys and girls.
3. EXPERIMENT: Suppose you flip a coin 4 times. List all the possible outcomes of heads and tails.
4. EXPERIMENT: Three children, Alice, Bob, and Caren, are arguing about who should be first in line for the ride at Cedar Point. List all the possible ways they could line up. Let A = Alice, B = Bob, C = Caren.