**The Great Race**

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You are attending the prestigious Wildcat Derby horse race and although you are not interested in gambling, you wonder if your favorite horse could win the race. So, for fun, you and your friends all pick the horse you believe will win the race.

From the list below, choose your favorite horse and write your name in the blank next to your choice. You may only select one horse.

Your Choice

Horse 1 Three-legged Suzy \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 2 Sleeping Beauty \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 3 Not my time \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 4 Who me? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 5 Chillaxed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 6 Blind as a Bat \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 7 Fat Louie \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 8 Old as the Hills \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 9 Rather Be Snoozing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 10 Not Now \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 11 Still Breathing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Horse 12 High Maintenance \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Racing the horses:**

To race the horses we will roll two dice and the sum of the dice will indicate which horse gets to move. Every time their number is rolled, the appropriate horse will move one space on the board below. The first horse to reach the finish line is the winner.

**Finish Line--------------------------------------------------------------------------------------------**

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| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |

The winner is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

Perhaps you would like to race again. Do you want to select another horse?

**Finish Line--------------------------------------------------------------------------------------------**

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| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** |

The winner is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

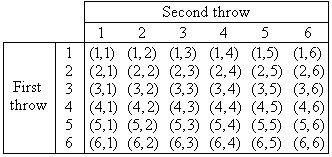
Was the race fair? Explain.

Let’s explore what is happening in this race. One way to observe the outcomes of this experiment (race) is to observe the sums of numbers showing on two dice.

1. Roll the pair of dice you have been given 30 times and count the number of times each outcome occurs. Assign probabilities to each of the outcomes in this sample space.

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| Sum | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| Frequency |  |  |  |  |  |  |  |  |  |  |  |
| Probability as a fraction |  |  |  |  |  |  |  |  |  |  |  |
| Probability as a percentage |  |  |  |  |  |  |  |  |  |  |  |

1. According to what you found out in the chart, which horses have the best chance of winning?
2. Which horses have the least chance of winning?
3. A second way to find the outcomes of this experiment is to list all possible combinations of the two dice. For example, we could roll a 3 followed by a 4. Here is a list of all of the possible rolls on two dice.





Can you tell why horses 6, 7 and 8 had a better chance of winning?

Why did horses 2 and 12 have the least chance of winning?

Why did horse 1 never leave the starting block?