

Instructions: Show all work. Use exact answers or round appropriately.

1. Write out the sample space for the following events:
 - a. Rolling a standard cubic die.

1, 2, 3, 4, 5, 6

- b. All the ways that three children can be born to a family.

BBB, BGB, BBG, GBB, BGG, GBG,
GGB, GGG

- c. The subset of above in which two girls are born.

BGG, GBG, GGB

2. Explain the differences between a) classical/theoretical probability, b) experimental/empirical probability, and c) subjective/personal probability.

Classical is calculated as a proportion of an equally likely sample space; experimental is calculated from conducting a trial and obtain a proportion of events that fit the event; subjective is an estimate from a feeling taking a "best guess" scenario into account.

3. Define the Law of Large Numbers.

as the number of trials increases, the proportion of events for the experimental probability will approach the theoretical probability.