

Probability Worksheet (Tree Diagrams)

1. Draw a tree diagram demonstrating the four possible birth outcomes for a family with 2 children (no twins). Use the symbol B for the outcome of *boy* and G for the outcome of *girl*. Consider the first birth to be the first stage.

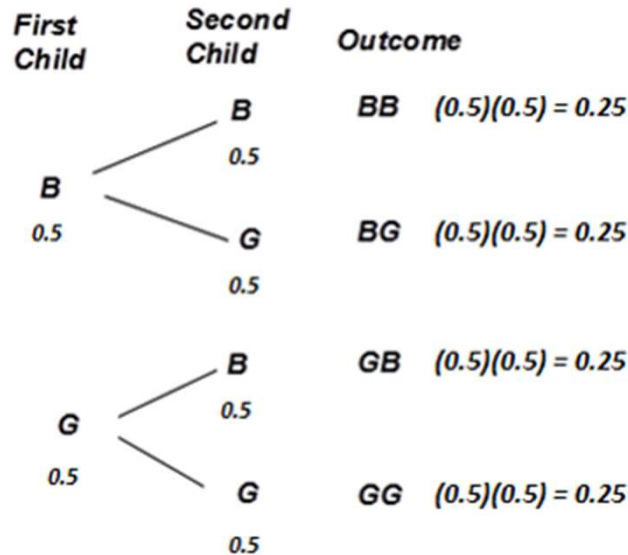
2. Write in the probabilities of each stage's outcome to the tree diagram you developed above, and determine the probabilities for each of the 4 possible birth outcomes for a family with 2 children (no twins).

3. What is the probability of a family having 2 girls in this situation? Is that greater than or less than the probability of having exactly 1 girl in 2 births?

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2. Write in the probabilities of each stage's outcome to the tree diagram you developed above, and determine the probabilities for each of the 4 possible birth outcomes for a family with 2 children (no twins).

In this case, since the probability of a boy is 0.5 and the probability of a girl is 0.5, each of the four outcomes will have a 0.25 probability of occurring because $(0.5)(0.5) = 0.25$.

3. What is the probability of a family having 2 girls in this situation? Is that greater than or less than the probability of having exactly 1 girl in 2 births?

The probability of a family having 2 girls is 0.25. This is less than the probability of having exactly 1 girl in 2 births, which is 0.5 (the sum of the probabilities of BG and GB).

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