

A coin is flipped five times in a row.

1. How many outcomes does this experiment have?
2. Use some sort of system to write out all the possible ways of obtaining exactly two heads. How many are there?
3. How many ways are there to obtain exactly one heads?
4. How many ways are there to obtain no heads?
5. Use symmetry to determine how many ways there are to obtain exactly three heads, exactly four, and all heads.
6. What is the probability of obtaining exactly two heads?