Answer on a separate sheet - attach this cover sheet.

The Chevalier de Méré was a gentleman gambler who made considerable money over the years betting on "rolling at least one six in four rolls of a die". This is the first game. He reasoned that he should also be able to make money by betting on "at least one double-six in twenty four rolls of two dice". This is the second game.

1. Describe what "a fair game" means. Compare probability of winning with winning amount. Give an example.

2. Is it possible to make money, in the long run, betting in a fair game? Explain.

3. Use your calculator to simulate the first game and find the probability of winning. Describe how you did this. Clearly state your empirical probability of winning.

4. If you bet on this game as if it was fair with a 50% chance of winning, would you make money, given your empirical probability? Explain.

5. Use your calculator to simulate the second game and find the probability of winning. Describe how you did this. Clearly state your empirical probability of winning.

6. If you bet on this game as if it was fair with a 50% chance of winning, would you make money, given your empirical probability? Explain.

7. Calculate the "classical" probability for each game. Did de Méré make money on the first game? Explain. Did he make money on the second game? Explain.

Chevalier de Méré	Total Score (12)
Q1 Probability ☐	Q1 Betting structure ☐
Q2 Possible?☐	Q2 Explain ☐
Q3 Game 1: Empirical Probability ☐	Q4 Make Money ☐ Explain ☐
Q5 Game 2: Empirical Probability ☐	Q6 Make Money ☐ Explain ☐
Q7 Game 1: Probability ☐ Make Money ☐	Explain ☐
Q7 Game 2: Probability ☐ Make Money ☐	Explain ☐