1. A star player in the NBA is offered a 6-year contract by a team and two choices for compensation. In the first, he is offered a lump sum of $40,000,000, paid at the beginning of his contract. In the second, he is offered an initial payment of $6,000,000 and a 6-year continuous income stream at the rate of $7,500,000 per year deposited into a savings account paying 8% annual interest, compounded continuously. Assuming that the player can also invest his money with the same interest of 8%, determine which plan is better for the player, and by how much.

(4 points)
2. A random variable has only three possible values: 1, 2 and 4. The expected value (mean) is 3 and the variance is $\frac{3}{2}$. Find the probability distribution of $X$.

(5 points)
3. Assume that the daily demand for a certain product in thousands of units has probability density function

\[ f(x) = \frac{1}{18}(9 - x^2), \quad 0 \leq x \leq 3. \]

(a) Find the probability that the demand is at least 1000 units.
(b) Find the probability that the demand is at most 2000 units.
(c) Find the probability that the demand is between 1000 and 2000 units.

\[ (2 \times 3 = 6 \text{ points}) \]