

Math 105 Assignment 10

Due the week of April 4

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 × 3 = 6 points)