Class Test-02

1. In the gambling game craps, the player wins \$1, \$2 and \$3 with probabilities 0.25, 0.20 and 0.15, and loses \$1 with probability 0.40 for each \$1 bet. What is the expected profit of the game for the player? Also, find the variance of the profit. **[3]**

2. Let the random variable X have the *pmf* $f(x) = \frac{(|x|-1)^2}{21}; x = -4, -2, 0, 2, 4$. Compute the mean, variance, $E(X^2 + 3X - 7)$ and $V(1 - \frac{X}{2})$. **[3]**

3. Suppose that in a region the probability of arresting an innocent person is 20%. If 1000 people are arrested, assuming Bernoulli experiment find the probability of arresting 120 innocent persons. Find the probability by Poisson process as well. **[4]**