**Mathematical Expectation**

**Assignment 4.1**

**Statistics and Probability**

**(Solve manually and upload scan copy)**

1. Suppose the p.m.f. of the discrete random variable *X* is:

formula

Find *E*(2), E(*X*),  *E*(2*X*) and V(X)?

1. The maximum patent life for a new drug is 17 years. Subtracting the length of time required by the Food and Drug Administration for testing and approval of the drug provides the actual patent life for the drug - that is, the length of time that the company has to recover research and development costs and to make a profit. The distribution of the lengths of actual patent lives for new drugs is as follows:

table

What is the mean and variance patent life for a new drug?

1. From the following probability distribution find a) k, b) E(X), c) Var(X), d) S.D.(X) and e) E(2X+5).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| X | -4 | -2 | 0 | 2 | 4 |
| P(X) | 0.1 | 0.3 | k | 0.3 | 0.1 |