EE 325 (1/2011) Homework Assignment 1 Due date: September, 2nd , 2011

Please submit in class ☺

1. Find the answers following questions
   a. $\sum_{i=1}^{8}(a+bx_i)$
   b. $\sum_{y=0}^{4} f(x,y)$
   c. $\sum_{i=1}^{6} i^2$
   d. $\sum_{x=1}^{3}\sum_{y=1}^{2}(2x+y)$
2. Given X is discrete random variable. The probability distribution function (PDF) of this variable is shown in the table

X	-2	-1	0	1	2	3	4
$f(x)$	0.5b	b	2.25b	2b	1.5b	0.5b	0.25b

   when b is constant number
   a. Find the value of b
   b. Find the answer for $P(X \le 3)$
   c. Find the answer for $P(-2 \le X \le 2)$
   d. Find the answer for $\mathrm{P}(\mathrm{X} \ge 0)$
3. Given X is continuous random variable. The probability distribution function (PDF) of this variable is

   $f(x) = -\frac{2}{9}x + \frac{6}{9}, 0 \le x \le 3$

   a. Plot graph for $f(x)$
   b. Find the answer for $P(1 \le X \le 2)$
   c. Find the answer for $P(X \ge 1)$
   d. Find the expected value of X
   e. Find the variance value of X

4. Let random variable X be the outcome of throwing one dice and random variable Y be the outcome of tossing one coin.
    a. Construct the joint probability distribution function (PDF) table of X and Y
    b. Find the marginal probability distribution function (PDF) of X
    c. Find the marginal probability distribution function (PDF) of Y
    d. Find the conditional probability distribution function (PDF) of X given Y is equal to H
    e. Find the expected value of X given Y is equal to H
    f. Find the variance of X given Y is equal to H