Tutorial Sheet 26
(Poisson Distribution)

1. Assume that X has a Poisson distribution $P_o(\lambda)$. Find each of the following probabilities:
   a) $P(X = 4)$ when $\lambda = 2.0$
   b) $P(X > 3)$ when $\lambda = 6.2$
   c) $P(X \leq 3)$ when $\lambda = 3.3$

2. The probability distribution of X, the number of telephone calls received per hour in a certain house, can be approximated by a Poisson probability distribution $P_o(1.14)$. Find the probability that, in an hour, more than one call is received.

3. 0.8% of packets of salt of a certain brand are underweight. Using Poisson approximation, find the probability that, in a box of 200 packets, 4 or more packets are underweight.

4. The demand of cheese cakes at a bakery is a random variable (X) having the Poisson distribution with $\lambda = 3.4$. The cost of producing each cake is \$20 and each is sold at a profit of \$40. Suppose 5 cakes are made each day.

   a) What is the probability that all cheese cakes are sold in a certain day.

   b) Complete the following table.

x	0	1	2	3	4	5	>5
Total profit (\$)	-100						

   c) Find the expected total profit per day.