1. The number of flaws on a computer tape has a Poission distribution with the average number of flaws being 1 every foot.
    (a) What is the pmf for the number of flaws in 1.5 feet?
    (b) What is the probability that there are more than three flaws in 1.5 feet?

2. Suppose there are 10 defective items in a lot of 40 items. A item is selected examined then put back in the lot. Suppose that items are drawn until four defective items are found. Find
    (a) the pmf associated with this experiment;
    (b) the probability that at least five selections are needed;
    (c) what is the average number of selections needed to find the four defective items?

3. Let X be $b(n, p)$.
    (a) show that $M(t) = (q + pe^t)^n$ where $q = 1 - p$;
    (b) find $M''(t)$;
    (c) show that $\sigma^2 = npq$.

4 Determine the constant c so that $f(x)$ satisfies the conditions of a p.d.f. for a random variable X. If $f(x) = cx^{\frac{3}{2}}, 0 \le x \le 2$,
    (b) find the cdf;
    (c) find $P(1 \le X < 1.5)$;
    (d) find the mean μ.

5 Problem 10 in section 2.4