Geometric r.v.

Problem #1.
As part of the underwriting process for insurance, each prospective policyholder is tested for high blood pressure.

Let Y represent the number of persons who are tested until the first person with high blood pressure is found where the probability of its occurrence in the population is 0.08.

What is the probability that the first person with high blood pressure will occur on the 4-th test?

Negative Binomial r.v.

Problem #2.
The probability that a machine produces a defective item is p=0.05. Each item is checked as it is produced. Assuming independence among items, compute the probability that the third defective item is found

(a) on the 20–th trial

Problem #3.
Find the probability that a person flipping a coin gets
(a) the third head on the seventh flip;
(b) the first head on the fourth flip.