

Problem 4 (10 pts)

To answer a numerical value, enter only the numerical value in the answer box and units are not required. If a problem statement says "up to N decimal places", answer by rounding off the N+1 decimal places.

As for the test method for a certain disease, the probability that the affected person can be correctly judged as positive is 0.94, and the probability that the unaffected person can be correctly judged as negative is 0.94. On this disease and test method, answer the following questions.

1.

The prior probability of the disease is 0.006. When a person is diagnosed as positive, find the probability of being actually affected up to the third decimal place.

2.

When the probability that a positively-diagnosed person is actually affected is more than 0.9, how much is the prior probability of the disease at least?

Answer by rounding it up to 4 decimal places.

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