

HW 12 Due : Friday, Nov. 22

- (1) (10 pts) Sec 12.3 Problem 16
- (2) (10 pts) Sec 12.3 Problem 18 (Hint: Let B_1 be the event that a person is infected and B_2 be the event that a person is not infected. Assume $P(B_1) = P/100$ and $P(B_2) = (100 - P)/100$.)
- (3) (20 pts) A screening test for a disease shows a positive result in 95% of all cases when the disease is actually present and in 10% of all cases when it is not. Assume that the prevalence of the disease in the population is $1/50$.
 - (a) Find the probability that person has the disease when the test is positive.
 - (b) Find the probability that person has the disease when the test is negative.
 - (c) Find the probability that person doesn't have the disease when the test is negative.(Hint: Use the Bayes formula.)
- (4) (10 pts) Sec 12.4 Problem 2
- (5) (10 pts) Sec 12.4 Problem 10
- (6) (10 pts) Sec 12.4 Problem 12
- (7) (15 pts) Sec 12.4 Problem 16
- (8) (15 pts) Sec 12.4 Problem 20