

Due Tuesday, Sept 25

Solve the following problems and staple your solutions to this cover sheet.

1. Exercise 2.65
2. Exercise 2.71
3. Exercise 2.80
4. Exercise 2.83
5. Exercise 2.84
6. Exercise 2.89
7. Exercise 2.97
8. What is a probability of a full house (a three of a kind along with a two of a kind) poker hand if the five cards are chosen randomly from a standard 52 card deck (13 different groups, each consisting of four cards of the same kind)?
9. In a manufacturing process, production line A produces 30% of the output and 4% of the items it produces are defective. Line B produces 50% of the output with a defective rate of 8%, and line C produces the remaining and has 3% defective rate. Suppose outputs of each line are boxed in lots of 10, and any large shipment consists of outputs of all lines in proportion of production. If one out of three items sampled by the customer from a box in a large shipment are defective, what is the probability that box came from line B?
10. Suppose events  $A$  and  $B$  are independent. Show that the events  $A$  and  $\overline{B}$  are also independent.