

HW #2B

8. In a party of five persons, compute the probability that at least two have the same birthday (month/day), assuming a 365-day year.
9. Solve the following problem in two ways: once using the multiplication rule of probability, and once using combinatorial methods:

Twenty items, 12 of which are defective and 8 nondefective, are inspected one after the other. If these items are chosen at random, what is the probability that:

- (a) the first two items inspected are defective?
- (b) the first two items inspected are nondefective?
- (c) among the first two items inspected there is one defective and one nondefective?
10. Each of two persons tosses three fair coins. What is the probability that they obtain the same number of heads?
11. Two dice are rolled. Given that the faces show different numbers what is the probability that one face is 4?
12. Two cards are selected at random from a deck of 52. What is the probability that one is a spade and ^{the other} is a king?
13. Are mutually exclusive events independent?

14. Given three components with respective reliabilities $R_1 = 0.8$, $R_2 = 0.75$, and $R_3 = 0.98$, compute the reliabilities of the three systems shown in Figure 1.P.2.

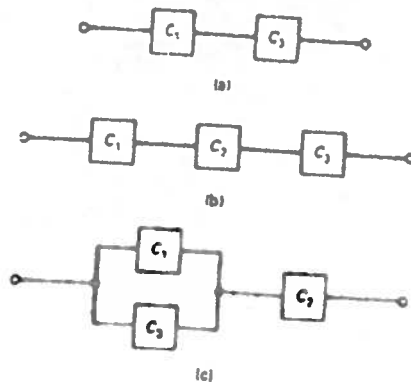


Figure 1.P.2 Reliability block diagrams