

1. Show that if $P(B) > 0$, then $P(A|B) = 1 - P(\bar{A}|B)$.
2. A bin contains 3 components from supplier A , 4 components from supplier B and 5 components from supplier C . If 4 components are randomly selected for testing, what is the probability that each supplier would have at least one component tested?
3. A drawer contains $n = 5$ pairs of distinguishable socks (a total of 10 socks). You randomly pick 4 socks. What is the probability that there is no pair in the 4 socks chosen?
4. Generalizing the previous problem, if a drawer contains n pairs of distinguishable socks, and you pick $2r$ socks, what is the probability that there is no pair in the $2r$ socks chosen?
5. A study of residents in part of CA showed that 20% were smokers. The probability of death from lung cancer, given the person smoked, was ten times the probability of death from lung cancer, given the person did not smoke. If the probability of death from lung cancer in the region is .006, what is the probability of death from lung cancer, given the person smoked?