

MAT156: Statistics
Probability Practice #1

Name: _____

Date: _____ Period: _____

1. A quality control manager uses test equipment to detect defective computer modems. A sample of 3 different modems is to be randomly selected from a group consisting of 12 that are defective and 19 that have no defects. What is the probability that (a) all 3 selected modems are defective; (b) at least 1 selected modem is defective?
2. When driving to class, a student must pass 2 traffic lights that operate independently. For each light, there is a 0.4 probability that it is green when the student arrives at the intersection. What is the probability that he will be on time if (a) he must reach both lights when they are green in order to make class on time; (b) he must reach at least one light when it is green to make it to class on time?
3. A consumer organization estimates that over a 1-year period 17% of cars will need to be repaired once, 7% will need repairs twice, and 4% will require three or more repairs. What is the probability that a car chosen at random will need (a) no repairs; (b) no more than one repair; (c) some repairs?
4. The Masterfoods company says that before the introduction of purple, yellow candies made up 20% of their plain M&M's, red another 20%, and orange, blue, and green each made up 10%. The rest were brown. (a) If you pick an M&M at random, what is the probability that 1) it is brown; 2) if it yellow or orange; 3) it is not green; 4) it is striped? (b) If you pick three M&Ms in a row, what is the probability that 1) they are all brown; 2) the third one is red; 3) none are yellow; 4) at least one is green?
5. A slot machine has three wheels that spin independently. Each has 10 equally likely symbols; 4 bars, 3 lemons, 2 cherries, and 1 bell. If you play, what is the probability that: (a) you get 3 lemons; (b) you get no fruit symbols; (c) you get 3 bells (the jackpot); (d) you get no bells; (e) you get at least one bar (an automatic loser)?

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