

Exam 3 Review Questions – Part 1

1. A survey of 100 students found that 40 like rock music, 55 like country music and 5 students like both.
 - a. What is the probability that a student who likes country music likes rock music?
 - b. Are the events “likes country music” and “likes rock music” mutually exclusive? Independent?
2. A bookshelf has 22 books on it. There are 7 hardback books and 15 paperback books. There are 5 reference books (all hardbacks), 10 fiction books (all paperbacks) and 7 non-fiction books. What is the probability that a non-fiction book is a paperback?
3. There is a 20% chance your mail comes before noon on Monday and a 30% chance that your mail comes before noon on Tuesday. If these events are independent, what is the probability your mail comes before noon on exactly one of these two days?
4. A box has 45 slips of paper. There are 5 colors of paper and 9 slips of each color. For each color of paper, the slips are numbered sequentially from 1 to 9. A “hand” of 3 slips of paper is chosen from the box. What is the probability that the 3 slips are the same color and numbered sequentially?
5. There are 72 marbles in a box. There are 18 different colors and 4 marbles of each color. Five marbles are chosen at random from the box. What is the probability of a full house? That is, 3 of one color and 2 of a different color.

6. Two fair six-sided dice are rolled. One is red and one is green. Let E denote the event that the green die shows a 3. Let F denote the event that the red die shows a 4. Let G denote the event that the sum of the numbers is 10. Let H denote the event that the numbers shown are the same.
 - (a) Are events E and F independent?
 - (b) Are events F and G independent?
 - (c) Are events E and G mutually exclusive?
 - (d) Find $P(G|E)$
 - (e) Find $P(G|H)$

1~1	2~1	3~1	4~1	5~1	6~1
1~2	2~2	3~2	4~2	5~2	6~2
1~3	2~3	3~3	4~3	5~3	6~3
1~4	2~4	3~4	4~4	5~4	6~4
1~5	2~5	3~5	4~5	5~5	6~5
1~6	2~6	3~6	4~6	5~6	6~6

7. A shipment of 14 video games contains exactly 3 defective games. A sample of 4 is chosen at random for testing. What is the probability that no defective games are chosen?
8. A student studying for a spelling test knows how to spell 15 of the 20 words on the list. The teacher chooses 10 questions at random from the list. What is the probability that the student knows at least 9 of the words on the test?
9. A fair coin is tossed 6 times. What is the probability you get heads exactly 3 times?