Name: Date:

Conditional Probability

Solve the following problems

1. In London, 48% of all teenagers own a skateboard and 39% of all teenagers own a skateboard and rollerblades. What is the probability that a teenager owns roller blades given that the teenager owns a skateboard?

2. At a local school, 18% of all students play football and basketball and 32% of all students play football. What is the probability that a student plays basketball given that the student plays football?

3. In the United States, 56% of all children get an allowance and 41% of all children get an allowance and do household chores. What is the probability that a child does household chores given that the child gets an allowance?

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4. In Europe, 88% of all households have a television. 51% of all households have a television and a VCR. What is the probability that a household has a VCR given that it has a television?

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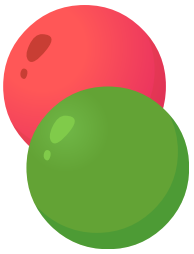
5. In New England, 84% of the houses have a garage and 65% of the houses have a garage and a back yard. What is the probability that a house has a backyard given that it has a garage?

6. Two cards are drawn in succession from a standard 52-card deck. What is the probability that both cards are aces if the cards are drawn without replacement?

7. A box contains four red, two white, and three green marbles, all of which are the same size. Two marbles are selected one after the other from the box, without replacement. What is the probability that the marbles are the same color?



8. A company has three plants which produce a certain item. 30% are produced at Plant A, 50% at Plant B, and 20% at Plant C. Suppose that 1%, 4% and 3% of the items produced at Plants A, B and C respectively are defective. If an item is selected at random from all those produced, what is the probability that the item was produced at Plant B and is defective?

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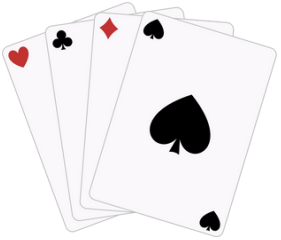
9. You roll two dice. The first die shows a ONE and the other die rolls under the table and you cannot see it. Now, what is the probability that both die show ONE?

10. You decide to tell your fortune by drawing two cards from a standard deck of 52 cards. What is the probability of drawing two cards of the same suite in a row? The cards are not replaced in the deck.



11. A Math teacher gave her class two tests. 25% of the class passed both tests and 42% of the class passed the first test. What percent of those who passed the first test also passed the second test?

12. A jar contains black and white marbles. Two marbles are chosen without replacement. The probability of selecting a black marble and then a white marble is 0.34, and the probability of selecting a black marble on the first draw is 0.47. What is the probability of selecting a white marble on the second draw, given that the first marble drawn was black?

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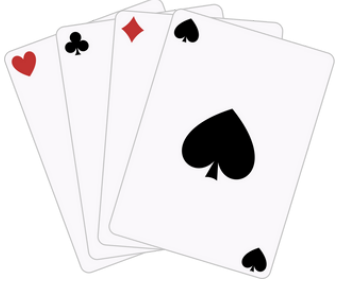
13. A new bag of golf tees contains 10 red tees, 10 orange tees, 10 green tees and 10 blue tees. You empty the tees into your golf bag. What is the probability of picking two tees of the same color in a row for you and your partner?

14. In a library box, there are 8 novels, 8 biographies, and 8 war history books. If Jack selects two books at random, what is the probability of selecting two different kinds of books in a row?

15. What is the probability that the sum of two die will be greater than 8, given that the first die is 6?

16. What is the probability of drawing two aces from a standard deck of cards, given that the first card is an ace? The cards are not returned to the deck.



Answers

Conditional Probability

1. 0.81	9. 1/6
2. 0.56	10. 12/51
3. 1.37	11. 0.60
4. 1.09	12. 0.72
5. 1.73	13. 9/39
6. 0.0045	14. 6/23
7. 20/72	15. 2/3
8. 0.02	16. 3/51