

12.1.1: Binomial Probability (Exercises)

SECTION 12.1 PROBLEM SET: BINOMIAL PROBABILITY

Do the following problems using the binomial probability formula.

1. A coin is tossed ten times. Find the probability of getting six heads and four tails.	2. A family has three children. Find the probability of having one boy and two girls.
3. What is the probability of getting three aces(ones) if a die is rolled five times?	4. A baseball player has a .250 batting average. What is the probability that he will have three hits in five times at bat?
5. A basketball player has an 80% chance of sinking a basket on a free throw. What is the probability that he will sink at least three baskets in five free throws?	6. With a new flu vaccination, 85% of the people in the high risk group can go through the entire winter without contracting the flu. In a group of six people who were vaccinated with this drug, what is the probabi
7. A transistor manufacturer has known that 5% of the transistors produced are defective. What is the probability that a batch of twenty five transistors will have two defective?	8. It has been determined that only 80% of the people wear seat belts. If a police officer stops a car with four people, what is the probability that at least one person will not be wearing a seat belt?
9. What is the probability that a family of five children will have at least three boys?	10. What is the probability that a toss of four coins will yield at most two heads?
11. A telemarketing executive has determined that for a particular product, 20% of the people contacted will purchase the product. If 10 people are contacted, what is the probability that at most 2 will buy the product?	12. To the problem: "Five cards are dealt from a deck of cards, find the probability that three of them are kings," the following incorrect answer was offered by a student. ${}^5C_3 (1/13)^3 (12/13)^2$ What change would you make in the wording of the problem for the given answer to be correct?
13. 63% of all registered voters in a large city voted in the last election. 20 registered voters from this city are randomly selected. Find the probability that a. exactly half of them voted in the last election b. all of them voted	14. 30% of customers at BigMart pay cash for their purchases. Suppose that 15 customers are randomly selected. Find the probability that a. 5 or 6 of them pay cash b. at most 1 pays cash
15. 12% of all cars on Brighton Expressway exceed the speed limit. If 10 vehicles on this road are randomly selected and their speed is recorded by radar, find the probability that a. none of them are exceeding the speed limit b. 1 or 2 are exceeding the speed limit	16. Suppose that 73% of all people taking a professional certification exam pass the exam. If 12 people who take this exam are randomly selected, find the probability that a. exactly half of them pass the exam b. all of them pass the exam c. 8 or 9 of them pass the exam

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