

Chapter 16 Test

- 1. Writing** Suppose the probability of an event can be determined both theoretically and empirically. Explain why the theoretical and empirical probabilities may not be the same.
- An experiment consists of randomly drawing a card from a standard deck and rolling a die. Find the probability that:
 - a. the card is a face card and the die shows a 5
 - b. the card is *not* a face card and the die shows a 5
 - c. the card is *not* a face card and the die does *not* show a 5
- A fish bowl contains slips of paper numbered 1 through 9. Two slips are drawn, one after the other and without replacement. Find the probability of each of the following events.
 - a. Both numbers are even.
 - b. The second number drawn is 3.
 - c. The first number drawn is greater than 7 and the second number drawn is less than 3.
- For a certain brand of marigold seeds, the seeds sprout on average 9 out of 10 times. If 4 seeds are selected at random and planted, find the probability that:
 - a. all 4 seeds sprout
 - b. at least 3 of the 4 seeds sprout
- A Central School PTA committee is to consist of 3 teachers and 3 parents, who are to be chosen at random from the 20 teachers and 100 parents involved in the PTA. If half of the teachers and 80 parents are women, find the probability that the committee has:
 - a. only female members
 - b. only 1 parent and only 1 teacher who are women
- Ninety-five percent of the sneakers manufactured by a shoe company have no defects. In order to find the 5% that do have defects, inspectors carefully look over every pair of sneakers. Still, the inspectors sometimes make mistakes because 4% of the defective pairs pass inspection and 2% of the good pairs fail the inspection test.
 - a. Incorporate the facts given above into a tree diagram.
 - b. What percent of the pairs of sneakers do *not* pass inspection?
 - c. If a pair of sneakers does *not* pass inspection, what is the probability that it does *not* have a defect?
- Decide if the following is a fair game; if it is not a fair game, state which player has the advantage: Two dice are rolled. If the sum is less than 7, player A wins \$5 from player B. Otherwise B wins \$4 from A.