

12-4**Practice****Multiplying Probabilities**

A die is rolled three times. Find each probability.

1. $P(\text{three } 4\text{s})$
2. $P(\text{no } 4\text{s})$
3. $P(2, \text{ then } 3, \text{ then } 1)$
4. $P(\text{three different even numbers})$
5. $P(\text{any number, then } 5, \text{ then } 5)$
6. $P(\text{even number, then odd number, then } 1)$

There are 3 nickels, 2 dimes, and 5 quarters in a purse. Three coins are selected in succession at random. Find the probability.

7. $P(\text{nickel, then dime, then quarter})$, if no replacement occurs
8. $P(\text{nickel, then dime, then quarter})$, if replacement occurs
9. $P(2 \text{ nickels, then } 1 \text{ quarter})$, if no replacement occurs
10. $P(3 \text{ dimes})$, if replacement occurs
11. $P(3 \text{ dimes})$, if no replacement occurs

For Exercises 12 and 13, determine whether the events are *independent* or *dependent*. Then find each probability.

12. Serena is creating a painting. She wants to use 2 more colors. She chooses randomly from 6 shades of red, 10 shades of green, 4 shades of yellow, 4 shades of purple, and 6 shades of blue. What is the probability that she chooses 2 shades of green?
13. Kershel's mother is shopping at a bakery. The owner offers Kershel a cookie from a jar containing 22 chocolate chip cookies, 18 sugar cookies, and 15 oatmeal cookies. Without looking, Kershel selects one, drops it back in, and then randomly selects another. What is the probability that neither selection was a chocolate chip cookie?
14. **METEOROLOGY** The Fadeeva's are planning a 3-day vacation to the mountains. A long-range forecast reports that the probability of rain each day is 10%. Assuming that the daily probabilities of rain are independent, what is the probability that there is no rain on the first two days, but that it rains on the third day?

RANDOM NUMBERS For Exercises 15 and 16, use the following information.

Anita has a list of 20 jobs around the house to do, and plans to do 3 of them today. She assigns each job a number from 1 to 20, and sets her calculator to generate random numbers from 1 to 20, which can reoccur. Of the jobs, 3 are outside, and the rest are inside.

15. Sketch a tree diagram showing all of the possibilities that the first three numbers generated correspond to inside jobs or outside jobs. Use it to find the probability that the first two numbers correspond to inside jobs, and the third to an outside job.
16. What is the probability that the number generated corresponds to an outside job three times in a row?