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Chapter 7

Numeric Response

1. Sheila visits the dentist once per year. After her check-up, she may choose 1 toy out of 8 different toys. Over 3 years, how many ways can Sheila choose her toys if she chooses a different toy each year?

3. Use the table to find $P(A \cup C)$.

Event	$P(A)$	$P(B)$	$P(C)$	$P(A \cap B)$	$P(A \cap C)$	$P(B \cap C)$	$P(A \cap B \cap C)$
Probability	0.3	0.5	0.6	0.6	0.2	0.2	0.6

Matching

Match each vocabulary term with its definition.

a. combination
b. tree diagram
c. Fundamental Counting Principle
d. permutation
e. probability
f. sample space
g. factorial
h. event

4. the set of all possible outcomes of a probability experiment
5. the product of the natural numbers less than or equal to the number
6. an outcome or set of outcomes in a probability experiment
7. an arrangement of a group of objects in which order is important
8. for n items, if there are m_1 ways to choose a first item, m_2 ways to choose a second item after the first item has been chosen, and so on, then there are $m_1 \cdot m_2 \cdot \ldots \cdot m_n$ ways to choose n items
9. a selection of a group of objects in which order is not important

Match each vocabulary term with its definition.

a. theoretical probability
b. equally likely outcomes
c. outcome
d. favorable outcomes
e. experimental probability
f. geometric probability
g. probability

10. the ratio of the number of equally likely outcomes in an event to the total number of possible outcomes
11. a number from 0 to 1 (or 0% to 100%) that describes how likely an event is to occur
12. outcomes that have the same probability of occurring
13. the occurrence of one of several possible outcomes of a specified event or probability experiment
14. a possible result of a probability experiment

Match each vocabulary term with its definition.

a. complement
b. experiment
c. experimental probability
d. geometric probability
e. theoretical probability
f. event
g. trial

15. in probability, any activity based on chance
16. a method of calculating probability based on a geometric measure such as length or area
17. all outcomes in the sample space that are not in event A
18. the ratio of the number of times an event occurs to the number of trials, or times, that an activity is performed
19. in probability, a single repetition or observation of an experiment

Match each vocabulary term with its definition.

a. experimental probability
b. independent events
c. simple event
d. conditional probability
e. compound event
f. theoretical probability
g. dependent events

20. an event consisting of only one outcome
21. events for which the occurrence or non-occurrence of one event affects the probability of the other event
22. events for which the occurrence or non-occurrence of one event does not affect the probability of the other event
23. an event made up of two or more simple events
24. the probability of event B, given that event A has already occurred or is certain to occur, denoted $P(B|A)$

Short Answer

25. Louise wears an outfit everyday that consists of one top (shirt, T-shirt, or blouse), one bottom (pants or skirt) and one scarf. Her wardrobe consists of a tan skirt, a pair of black pants, 2 T-shirts, one silk blouse, 1 button-down shirt, and a set of 3 scarves. How many different outfits can Louise put together?

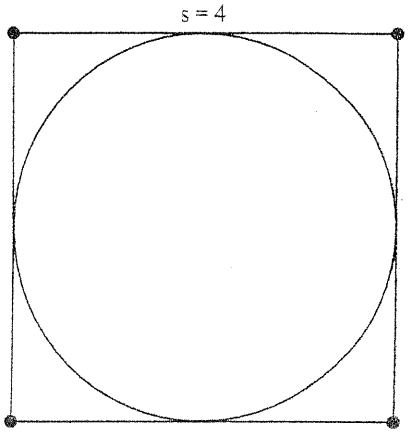
26. There are 4 singers competing at a talent show. In how many different ways can the singers appear?

27. Joel owns 12 shirts and is selecting the ones he will wear to school next week. How many different ways can Joel choose a group of 5 shirts? (Note that he will not wear the same shirt more than once during the week.)

28. An experiment consists of rolling a number cube. What is the probability of rolling a number greater than 4? Express your answer as a fraction in simplest form.

29. A person is selected at random. What is the probability that the person was not born on a Monday? Express your answer as a percent. If necessary, round your answer to the nearest tenth of a percent.

30. A circle is inscribed in a square with a side length of 4. If a point in the square is chosen at random, what is the probability that the point is in the square but not in the circle? Express your answer as a percent, and round to the nearest tenth.



31. The table shows the distribution of the labor force in the United States in the year 2000. Suppose that a worker is selected at random. Find the probability that a female works in the Industry field. Express your answer as a decimal, and round to the nearest thousandth.

	Agriculture	Industry	Services
Male	3,132,000	25,056,000	50,112,000
Female	667,000	8,004,000	57,362,000

33. In recent years, the three most popular car colors in the United States have been black, silver, and white. Suppose a poll of 80 randomly-selected car buyers gave the following results. The table shows how men's and women's preferences differed in the poll. Make a table of the joint and marginal relative frequencies. Express percentages in decimal form.

	Black	Silver	White	Other
Men	7	9	8	16
Women	9	11	10	10

34. At a small high school, there are 80 girls in the senior class. Some of them play basketball, some play soccer, some play both, and some play neither. The table shows the joint and marginal frequencies for the senior girls.
If you know that a girl plays soccer, what is the probability that she also plays basketball? Express your answer as a decimal. If necessary, round your answer to the nearest hundredth.

		Plays soccer		
		Yes	No	Total
Plays basketball	Yes	0.075	0.100	0.175
	No	0.250	0.575	0.825
	Total	0.325	0.675	1

35. A study compared the on-time performance for three bus companies. A table with the joint and marginal frequencies of the results is shown.
Determine which company has the best on-time performance. Explain how to identify the company that performed best.

	On – time	Late	Total
Cross – Country Bus	0.35	0.05	0.4
Express Way Lines	0.3	0.03	0.33
Red Dog Transit	0.22	0.05	0.27
Total	0.87	0.13	1

36. A group of 4 students went to drink pearl tea and study at a local tea shop. The shop offers 12 different flavors of pearl tea. What is the probability that at least 2 students ordered the same flavor? Express your answer as a decimal, and round to the nearest ten thousandths.