Practice Ch 13

Basic Probability

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1. You select a number at random from the sample space {1, 2, 3, 4, 5}.
Find each theoretical probability.

   a. *P*(the number is 2)   **b.** *P*(the number is even)

   c. *P*(the number is prime)   **d.** *P*(the number is less than 5)

2. In a class of 19 students, 10 study Spanish, 7 study French, and 2 study
both French and Spanish. One student is picked at random. Find each
probability.

   a. *P*(studying Spanish but not French)   **b.** *P*(studying neither Spanish nor French)

   c. *P*(studying both Spanish and French)   **d.** *P*(studying French)

3. In a telephone survey of 150 households, 75 respondents answered
"Yes" to a particular question, 50 answered "No," and 25 were "Not
sure." Find each experimental probability.

   a. *P*(answer was "Yes")   **b.** *P*(answer was "No")

   c. *P*(answer was "Not sure")   **d.** *P*(answer was not "Not sure")

4. A wallet contains four bills with denominations of $1, $5, $10, and $20.
You choose two of the four bills from the wallet at random and add the
dollar amounts.

   a. What is the sample space? How many outcomes are there?

   b. What is the probability of getting $15?

   c. What is the probability of getting $50?

   d. What is the probability of getting at least $25?

5. A basketball player has attempted 24 shots and made 13. Find the experimental
probability that the player will make the next shot that she attempts.

6. A baseball player attempted to steal a base 70 times and was successful 47 times.
Find the experimental probability that the player will be successful on his next
attempt to steal a base.

Find each probability.

7. A flavored-water company wants to know how many people prefer its
new lemon-flavored water over two competitors' brands. The company
hires you to survey 1000 people and ask them to rank the three drinks
in order of preference. After conducting the survey, you find that 35%
prefer the lemon-flavored water over Competitor A, 38% prefer the
lemon-flavored water over Competitor B, and 47% did not prefer the
lemon-flavored water over either competitor's brand. What is the
probability that someone prefers the lemon-flavored water over both
competitors' brands?

8. A natural number from 1 to 10 is randomly chosen.

    a. *P*(even or 7)   **b.** *P*(even or odd)

    c. *P*(multiple of 2 or multiple of 3)   **d.** *P*(odd or less than 3)

9. A standard number cube is tossed.

    a. *P*(even or 3)   **b.** *P*(less than 2 or even)

    c. *P*(prime or 4)   **d.** *P*(2 or greater than 6)

10. Only 93% of the airplane parts Salome is examining pass inspection. What is the probability that all of the next five parts pass inspection?

11. There is a 50% chance of thunderstorms the next three days. What is the probability that there will be thunderstorms each of the next three days?

Q and *R* are independent events. Find *P*(*Q* and *R*).

12. $P(Q) = \frac{1}{8}$, $P(R) = \frac{2}{5}$ **13.** $P(Q) = 0.8$, $P(R) = 0.2$ **14.** $P(Q) = \frac{1}{4}$, $P(R) = \frac{1}{5}$

M and *N* are mutually exclusive events. Find *P*(*M* or *N*).

15. $P(M) = \frac{3}{4}$, $P(N) = \frac{1}{6}$ **16.** $P(M) = 10\%$, $P(N) = 45\%$ **17.** $P(M) = \frac{1}{5}$, $P(N) = 18\%$