

Practice 4-6

Probability of Compound Events

1. Suppose you have a dark closet containing seven blue shirts, five yellow shirts, and eight white shirts. You pick two shirts from the closet. Find each probability.
- | | |
|--|---|
| a. $P(\text{blue then yellow})$ with replacing | b. $P(\text{blue then yellow})$ without replacing |
| c. $P(\text{yellow then yellow})$ with replacing | d. $P(\text{yellow then yellow})$ without replacing |
| e. $P(\text{yellow then white})$ with replacing | f. $P(\text{yellow then white})$ without replacing |
| g. $P(\text{blue then blue})$ with replacing | h. $P(\text{blue then blue})$ without replacing |

A and B are independent events. Find the missing probability.

2. $P(A) = \frac{3}{7}, P(A \text{ and } B) = \frac{1}{3}$. Find $P(B)$.
3. $P(B) = \frac{1}{5}, P(A \text{ and } B) = \frac{2}{13}$. Find $P(A)$.
4. $P(B) = \frac{15}{16}, P(A \text{ and } B) = \frac{3}{4}$. Find $P(A)$.
5. $P(A) = \frac{8}{15}, P(B) = \frac{3}{4}$. Find $P(A \text{ and } B)$.
6. Suppose you draw two tennis balls from a bag containing seven pink, four white, three yellow, and two striped balls. Find each probability.
- | | |
|--|---|
| a. $P(\text{yellow then pink})$ with replacing | b. $P(\text{yellow then pink})$ without replacing |
| c. $P(\text{pink then pink})$ with replacing | d. $P(\text{pink then pink})$ without replacing |
| e. $P(\text{striped then striped})$ with replacing | f. $P(\text{striped then striped})$ without replacing |
| g. $P(\text{pink then white})$ with replacing | h. $P(\text{pink then white})$ without replacing |

A and B are independent events. Find the missing probability.

7. $P(A) = \frac{3}{4}, P(A \text{ and } B) = \frac{1}{2}$. Find $P(B)$.
8. $P(A) = \frac{3}{7}, P(B) = \frac{1}{6}$. Find $P(A \text{ and } B)$.
9. $P(B) = \frac{9}{10}, P(A \text{ and } B) = \frac{3}{5}$. Find $P(A)$.
10. $P(B) = \frac{1}{4}, P(A \text{ and } B) = \frac{3}{20}$. Find $P(A)$.

Use an equation to solve each problem.

11. A bag contains green and yellow color tiles. You pick two tiles without replacing the first one. The probability that the first tile is yellow is $\frac{3}{5}$. The probability of drawing two yellow tiles is $\frac{12}{35}$. Find the probability that the second tile you pick is yellow.
12. A bag contains red and blue marbles. You pick two marbles without replacing the first one. The probability of drawing a blue and then a red is $\frac{4}{15}$. The probability that your second marble is red if your first marble is blue is $\frac{2}{3}$. Find the probability that the first marble is blue.