Practice 2-7

1. Suppose you have a dark closet containing seven blue shirts, five yellow shirts, and eight white shirts. You pick two shirts at random from the closet. Find each probability.

   a. P(blue then yellow) with replacing

   b. P(blue then yellow) without replacing

   c. P(yellow then yellow) with replacing

   d. P(yellow then yellow) without replacing

   e. P(yellow then white) with replacing

   f. P(yellow then white) without replacing

   g. P(blue then blue) with replacing

   h. P(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 at random from a bag containing seven pink, four white, three yellow, and two striped balls. Find each probability.

   a. P(yellow then pink) with replacing

   b. P(yellow then pink) without replacing

   c. P(pink then pink) with replacing

   d. P(pink then pink) without replacing

   e. P(striped then striped) with replacing

   f. P(striped then striped) without replacing

   g. P(pink then white) with replacing

   h. P(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 at random 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 at random 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.