

LESSON
11-3

Practice A
Independent and Dependent Events

Find each probability.

1. Hal is tossing a quarter.
 - a. What is the probability he will toss heads? _____
 - b. What is the probability he will toss tails? _____
 - c. What is the probability he will toss heads and then tails? _____
2. Hal tosses a quarter three times. What is the probability the result will be tails each time? _____
3. Katie rolls a 1–6 number cube twice. What is the probability she will roll an odd number and then an even number? _____
4. Katie rolls the 1–6 number cube three times. What is the probability that the result will be a 3 each time? _____

There are 3 apples and 5 oranges in a bag. Determine each probability.

5. Selecting 2 apples when they are chosen at random without replacement _____
6. Selecting an orange, then an apple when they are chosen at random without replacement _____

A student must have a B average or better for all courses to qualify for any athletic team at Jefferson High School. The table below shows the distribution of students' grades in three sports at the school.

Sport	Students with an A Average	Students with a B Average
Field hockey	15	4
Basketball	7	13
Football	2	22

An athlete is randomly selected. Find each probability in decimal form.

7. The student is a field hockey player with a B average. _____
8. The student has an A average and plays football. _____
9. The student has a B average and does NOT play football. _____

There are 4 green marbles and 3 white marbles in a bag. A white marble is randomly selected and not replaced. Then a green marble is randomly selected.

10. Are these events dependent or independent? _____
11. What is the probability of this event occurring? _____

Problem Solving

- a. $P(N) = \frac{94}{564} \approx 0.17$
b. $P(N \text{ or } \textit{through}) = \frac{94 + 282}{564} \approx 0.67$
c. $1 - P(N) = 1 - 0.17 \approx 0.83$
- a. $\frac{76}{608} = 0.125$
b. $\frac{76 + 380}{608} = 0.75$
c. $1 - 0.125 = 0.875$
- Experimental; possible answer: the probabilities are based on actual data.
- C
- H

Reading Strategy

- $n = 3, t = 6$
- $n = 2, t = 8$
- $n = 8, t = 16$
- $n = 4, t = 12$
- Rolling a 1, 2, 4, 5, or 6
- a. Selecting a black marble or a white marble
b. $P(\text{not red}) = 1 - P(\text{red}) = 1 - \frac{10}{37} = \frac{27}{37}$

LESSON 11-3

Practice A

- a. $\frac{1}{2}$
b. $\frac{1}{2}$
c. $\frac{1}{4}$
- $\frac{1}{8}$
- $\frac{1}{4}$
- $\frac{1}{216}$
- $\frac{15}{56}$
- 0.063
- 0.032
- 0.27
- Dependent
- $\frac{2}{7}$

Practice B

- $\frac{3}{50}$
- $\frac{1}{9}$
- a. The events are dependent because $P(\text{sum} \geq 6)$ is different when it is known that a black 3 occurred.
b. $\frac{1}{9}$
- a. The events are dependent because $P(\text{sum} = 8)$ is different when it is known that the white cube shows an even number.
b. $\frac{1}{12}$
- 0.52
- 0.09
- 0.12
- Independent; $\frac{15}{121}$
- Dependent; $\frac{3}{43}$

Practice C

- $\frac{1}{9}$
- $\frac{1}{16}$
- a. Because $P(\text{sum} \geq 10)$ is different when it is known that the first spin lands on 4.
b. $\frac{1}{8}$
- a. Because $P(6)$ is different when it is known that the sum of both spins is less than or equal to 10.
b. $\frac{1}{8}$
- 0.35
- 0.65
- Independent; $\frac{3}{289}$
- Dependent; $\frac{7}{136}$

Reteach

- a. $\frac{1}{6}$
b. $\frac{1}{6}$
c. $\frac{1}{36}$