

Section 8.7 Probability

Objective: In this lesson you learned how to find the probabilities of events and their complements.

Course Number

Instructor

Date

Important Vocabulary

Define each term or concept.

Experiment

Outcomes

Sample space

Event

Mutually exclusive

Independent events

Complement of an event

I. The Probability of an Event (Pages 636–639)

The measure of the likelihood that an event will occur based on chance is called the _____ of an event. If an event E has $n(E)$ equally likely outcomes and its sample space S has $n(S)$ equally likely outcomes, the probability of event E is _____.

The probability of an event must be between _____ and _____.

If $P(E) = 0$, the event E _____ occur, and E is called a(n) _____ event. If $P(E) = 1$, the event E _____ occur, and E is called a(n) _____ event.

What you should learn

How to find the probability of an event

Example 1: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If a marble is selected at random from the box, what is the probability that it is yellow?

II. Mutually Exclusive Events (Pages 640–641)

If A and B are events in the same sample space, the probability of A or B occurring is given by $P(A \cup B) =$ _____.

What you should learn
How to find the probabilities of mutually exclusive events

To find the probability that one or the other of two mutually exclusive events will occur, . . .

Example 2: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If a marble is selected at random from the box, what is the probability that it is either red or black?

III. Independent Events (Page 642)

If A and B are independent events, the probability that both A and B will occur is $P(A \text{ and } B) =$ _____.

What you should learn
How to find the probabilities of independent events

That is, to find the probability that two independent events will occur, . . .

Example 3: A box contains 3 red marbles, 5 black marbles, and 2 yellow marbles. If two marbles are randomly selected with replacement, what is the probability that both marbles are yellow?

IV. The Complement of an Event (Page 643)

Let A be an event and let A' be its complement. If the probability of A is $P(A)$, the probability of the complement is $P(A') =$ _____.

What you should learn
How to find the probability of the complement of an event

Homework Assignment

Page(s)

Exercises