Lesson 9-1

Example 1

RECREATION Bear fans attending a recent 3-game series were asked whether the team should have a mascot. The table shows how many fans thought it should.

Game	Attendance	In favor of mascot
Friday	792	378
Saturday	835	456
Sunday	948	658

According to these results, what is the probability that a Bear fan wants the team to have a mascot?

Solution

Use the experimental probability formula.

$$P(E) = \frac{\text{number of favorable observations of } E}{\text{total number of observations}}$$

$$P(E) = \frac{1492}{2575} = 0.58$$

The probability that a fan interviewed at the next Bears game will favor having a team mascot is 0.58.

Example 2

SPORTS A baseball team has 7 pitchers and 3 catchers. The manager is choosing a pitcher-catcher combination. How many are possible?

Solution

One way to show all possible outcomes is to use ordered pairs. For example, use the letters A-C for the catchers and the numbers 1-7 for the pitchers.

(A,1)	(A,2)	(A,3)	(A,4)	(A,5)	(A,6)	(A,7)
(B,1)	(B,2)	(B,3)	(B,4)	(B,5)	(B,6)	(B,7)
(C,1)	(C,2)	(C,3)	(C,4)	(C,5)	(C,6)	(C,7)

There are 21 possible pitcher-catcher combinations.

Example 3

SPORTS A softball player has had 18 hits in her first 30 times at bat. Predict her total hits in 330 at bats.

Solution

First, use the outcomes that have already occurred to find the probability of the player getting a hit each time at bat.

$$P(\text{hit}) = \frac{18}{30} = 0.6$$

Then multiply that result by the total number of times at bat.

$$0.6(330) = 198$$

Based on the player's first 30 times at bat, you can predict that she will get 198 hits in 330 at-bats.

Example 4

CARD GAMES A card is picked at random from a standard deck of 52 cards. Find $P(\text{club})$.

Solution

There are 52 possible outcomes. There are 13 favorable outcomes-13 clubs.

$$P(\text{club}) = \frac{13}{52} = \frac{1}{4}$$