

4.1-4.3: Probability Basics; Events; Some Rules of Probability

Terms to know:

- The **probability** of an event is the _____ of the event occurring.
- A **probability experiment** is a _____ that leads to well-defined results called **outcomes**.
- The **sample space** is the set of all _____ of a probability experiment.

Examples:

1. Experiment

Sample Space

(a) flip a coin

(a)

(b) roll a die

(b)

(c) flip 2 coins

(c)

2. Find the sample space for drawing one card from a standard deck.





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Examples:

1. For a family with 3 children, find the probability that 2 are girls and 1 is a boy.

2. A card is drawn from a deck. Find the probability of getting:

(a) an ace

(b) the 2 of diamonds

Example: 20 people were tested for their blood types. The results were:

Blood Type	Frequency
A	8
B	3
AB	2
O	7

Find the probability that:

(a) a person has type O blood.

(b) a person has type A or type AB blood.

Examples:

1. A single card is drawn from a standard deck. Find the probability of selecting the following.

(a) A 4 or a diamond

$$\begin{aligned} &= P(4) + P(\text{diamond}) - P(4 \text{ and diamond}) \\ &= \frac{4}{52} + \frac{13}{52} - \frac{1}{52} \end{aligned}$$

(b) A jack or a black card

Which event is *more likely* to occur? Explain.

2. A local postal carrier distributes first-class letters, advertisements, and magazines. For a certain day, she distributed the following numbers of each type of item. (The information has been organized into the *contingency table* below.)

Delivered to	First-class letters	Ads	Magazines
Home	325	406	203



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