Introduction to Probability

Objectives

1. Determine the probability of an event

Sample Space

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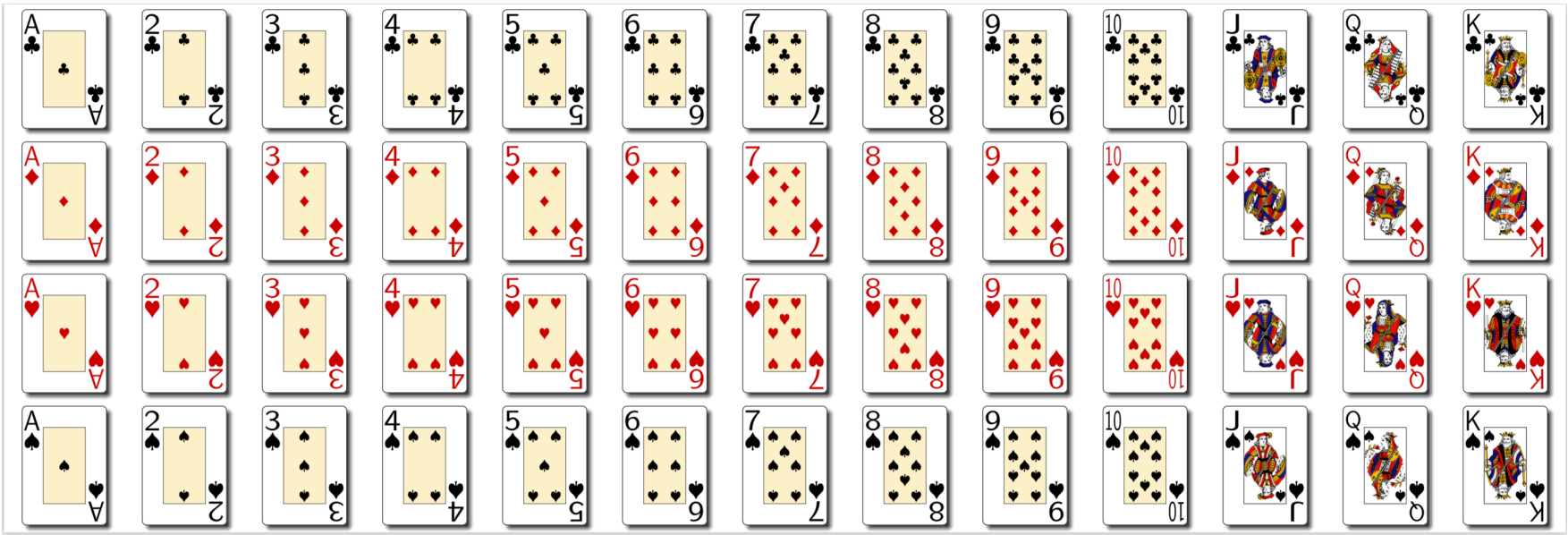
Common sample spaces:

- *Flipping a coin*: Heads, Tails
- *Rolling a single die*: 1, 2, 3, 4, 5, 6
- *Drawing a card from a standard deck*: Ace of spades, ace of hearts, . . . , king of diamonds

Playing Cards



Probability

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$$\text{Probability} = \frac{\text{number of ways the event can occur}}{\text{total outcomes in sample space}}$$

Example 1

Determine the probability of each event.

(a) Flipping a coin and landing on heads

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$$P(\text{heads}) = \frac{1}{2}$$

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(b) Rolling a number less than 3 on a single die.

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2 outcomes: 1, 2

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$$P(\text{rolling less than 3 on a single die}) = \frac{2}{6} = \frac{1}{3}$$

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$$P(\text{drawing a face card}) = \frac{12}{52}$$

$$P(\text{drawing a face card}) = \frac{3}{13}$$