

4.4. Basic Probability

①

S - Sample space

E - Event

$$P(E) = \frac{n(E)}{n(S)}$$

Probability is never > (greater than) 1

Empirical Probability

(4)

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$E = \{1, 3, 4, 6\}$$

$$n(E) = 4 \quad n(S) = 6$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{6} = \frac{2}{3}$$

(6)

52 cards

$$n(S) = 52$$

$$n(E) = 13$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{13}{52} = \frac{1}{4}$$

(8)

$$n(S) = 52$$

$$E = \{3, 4, 5\} \times 4 = n(E) = 12$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{12}{52}$$

22 Total sample space

3

$$20 + 60 + 100 + 70 = 250$$

$$P(A) = \frac{n(A)}{n(S)} = \frac{20}{250} = \frac{2}{25}$$

$$P(B) = \frac{n(B)}{n(S)} = \frac{60}{250} = \frac{6}{25}$$