

p.55 #50,51

$n = 31$

243

①

10-5

0		5
1		
2		
3		2 3 4 5 7 8
4		2 2 3 4 5 6 7 7 8 8 8 9 9
5		0 1 2 2 3 5 6 7 8
6		3
7		8

$$Q_2: i = 32(.5) = 16$$

$$Q_2 = 48$$

$$Q_1: i = 32(.25) = 8$$

$$Q_1 = 42$$

$$Q_3: i = 32(.75) = 24$$

$$Q_3 = 52$$

②

$$IQR = Q_3 - Q_1 = 52 - 42 = 10$$

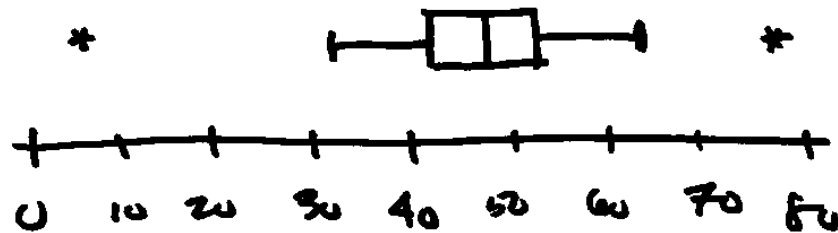
$$LF = Q_1 - 1.5IQR = 42 - 1.5(10) = 27$$

$$UF = Q_3 + 1.5IQR = 52 + 1.5(10) = 67$$

5 and 78 are outliers

32, 42, 48, 52, 63

③



## Chapter 2 : Probability

Experiment: A process which leads to one of several possible outcomes.

Sample space: The collection of all possible outcomes of an experiment.

④

Example 1: Experiment is "Flip 1 coin"

$$S = \{H, T\}$$

Example 2: "Roll 1 die" = experiment

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

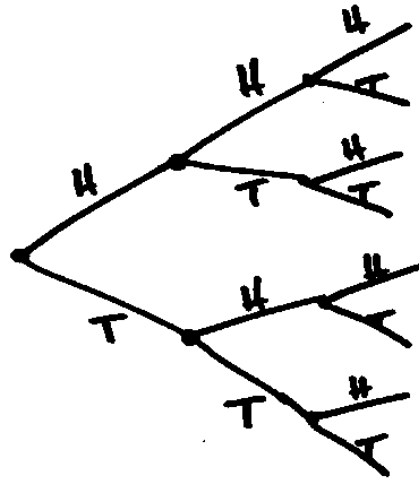
Example 3: "Flip 2 coins, in sequence"

$$S = \{HH, HT, TH, TT\}$$

(5)

Example 4: "Flip 3 coins, in sequence"

$$S = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$$



(6)

Event: A subcollection of items from the sample space.

Probability of an event: number of items in the event, divided by the number of items in the sample space.

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

⑦

Return to example 1:

Find the probability that the coin is "heads".

$$S = \{H, T\} \quad A = \{H\}$$

$$n(S) = 2 \quad n(A) = 1$$

$$P(A) = \frac{1}{2} = .5 = 50\%$$

Example 2: Find the probability of rolling either a 1 or a 6.

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

$$P(A) = \frac{2}{6} = \frac{1}{3} = .33 = 33\%$$

⑧

Example 3: Find the probability that both coins are "heads"

$$S = \{HH, HT, TH, TT\} \quad A = \{HH\}$$

$$P(A) = \frac{1}{4}$$

Example 4: Find the probability of getting exactly 2 "heads".

$$S = \{HHH, HHT, HTH, HTT, THH, THT, TTH, TTT\}$$

$$A = \{HHT, HTH, THH\} \quad P(A) = \frac{3}{8}$$

Example 5: Experiment = "Roll 2 dice, in sequence" (9)

$$S = \left\{ \begin{array}{l} 11, 12, 13, 14, 15, 16 \\ 21, 22, 23, 24, 25, 26 \\ \vdots \\ 61, 62, 63, 64, 65, 66 \end{array} \right\}$$

Find the probability of rolling a sum of 11.

$$A = \{56, 65\} \quad P(A) = \frac{2}{36} = \frac{1}{18}$$

Find the probability of rolling a sum of 7. (10)

$$B = \{16, 25, 34, 43, 52, 61\}$$

$$P(B) = \frac{6}{36} = \frac{1}{6}$$

More definitions:

The complement of an event is the collection of items in the sample space, not in the event.

$\bar{A}$

(11)

The intersection of 2 events is the collection of items which lie in both events A and B

$$A \cap B$$

The union of 2 events is the collection of items which in either A or B (or possibly both)

$$A \cup B$$

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

Let  $A = \{1, 2, 3\}$ ,  $B = \{2, 4, 6\}$

(12)

Then  $\bar{A} = \{4, 5, 6\}$

$$\bar{B} = \{1, 3, 5\}$$

$$A \cap B = \{2\}$$

$$A \cup B = \{1, 2, 3, 4, 6\}$$

$$\begin{aligned} \bar{A} \cap B &= \{4, 5, 6\} \cap \{2, 4, 6\} \\ &= \{4, 6\} \end{aligned}$$

Hw: p.81 #11, p.85 #21, 23