

Set Notation Examples

1. Your experiment is to roll a single dice.

(a) What is the sample space S for this experiment.

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

(b) Define the events A , B , and C to be

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

Find the following events.

i. $A \cup B = \{1, 2, 3\}$

ii. $A \cap B = \{1\}$

iii. $\bar{A} = \{3, 4, 5, 6\}$

iv. $A \cap \bar{C} = \{1\}$

v. $\bar{A} \cap B = \{4, 5, 6\}$

2. Your experiment is to flip a coin 2 times.

(a) What is the sample space S for your experiment.

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

(b) Define the events A , B and C to be

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

Find the following events.

i. $A \cap B = \{HT, TH\}$

ii. $B \cup C = \{TT, HT, TH\}$

iii. $\bar{A} \cap C = \{TT\}$

iv. $B \cap \bar{C} = \{HT, TH\}$