

## 2.4

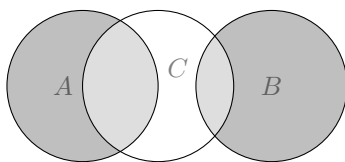
1.  $S = \{(1, 1), (1, 2), (1, 3), (1, 4), (1, 5), (1, 6), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 1), (3, 2), (3, 3), (3, 4), (3, 5), (3, 6), (4, 1), (4, 2), (4, 3), (4, 4), (4, 5), (4, 6), (5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)\}$
2.  $S = \{x, y \mid 0 \leq x \leq 6, 0 \leq y \leq 6\}$

## 2.6

$$S = \{A_1A_2, A_1A_3, A_1A_4, A_2A_3, A_2A_4, A_3A_4\}$$

## 2.8

1.  $A = \{(3, 6), (4, 5), (4, 6), (5, 4), (5, 5), (5, 6), (6, 3), (6, 4), (6, 5), (6, 6)\}$
2.  $B = \{(1, 2), (2, 1), (2, 2), (2, 3), (2, 4), (2, 5), (2, 6), (3, 2), (4, 2), (5, 2), (6, 2)\}$
3.  $C = \{(5, 1), (5, 2), (5, 3), (5, 4), (5, 5), (5, 6), (6, 1), (6, 2), (6, 3), (6, 4), (6, 5), (6, 6)\}$
4.  $A \cap C = \{(5, 4), (5, 5), (5, 6), (6, 3), (6, 4), (6, 5), (6, 6)\}$
5.  $A \cap B = \{\emptyset\}$
6.  $B \cap C = \{(5, 2), (6, 2)\}$



7.

## 2.10

1.  $S = \{NNN, NNF, NFN, NFF, FNN, FNF, FFN, FFF\}$
2.  $E = \{NFF, FNF, FFN, FFF\}$
3. The second river is always safe to fish.

## 2.14

1.  $A \cup C = \{0, 2, 3, 4, 5, 6, 8\}$
2.  $A \cap B = \{\emptyset\}$
3.  $C' = \{0, 1, 6, 7, 8, 9\}$
4.  $(C' \cap D) \cup B = \{1, 3, 5, 6, 7, 9\}$
5.  $(S \cap C)' = \{0, 1, 6, 7, 8, 9\}$
6.  $A \cap C \cap D' = \{2, 4\}$

## 2.16

1.  $M \cup N = \{x \mid 0 < x < 9\}$
2.  $M \cap N = \{x \mid 1 < x < 5\}$
3.  $M' \cap N = \{x \mid 9 < x < 12\}$

**2.22**

$8 \cdot 3 = 24$  classifications

**2.26**

1.  $\binom{7}{5} = 21$  ways

2.  $\binom{5}{3} = 10$  ways

**2.28**

$5 \cdot 3 \cdot 2 = 30$  different ways

**2.30**

$9^2 = 72$  ways

**2.34**

1.  $7! = 5040$

2.  $6! = 720$

**2.38**

- $8! = 40320$
- $4! \cdot 2^4 = 384$
- $4! \cdot 4! = 576$

**2.46**

$\frac{9!}{3!4!2!} = 1260$

**2.50**

- $P(A) = \frac{10}{36}$
- $P(C) = \frac{12}{36}$
- $P(A \cap C) = \frac{7}{36}$

**2.52**

- $210 - 122 = 88$   
 $\frac{88}{500}$
- $83 - 52 = 31$   
 $\frac{31}{500}$
- $500 - (210 + 216 - 97) = 171$   
 $\frac{171}{500}$

**2.56**

- $0.25 + 0.17 - 0.15 = 0.27$
- $1 - (0.25 + 0.17 - 0.15) = 0.73$

**2.58**

- $\frac{5}{36}$
- $\frac{10}{36}$

**2.64**

- $1 - 0.42 = 0.58$
- $1 - 0.04 = 0.96$

**2.74**

**2.80**

**2.86**

1. fill

2. fill

**2.90**

**2.92**

**2.96**

**2.98**

**2.104**

**2.118**

**2.124**