Exercise (set operations)

(1) $A = \{ x \mid x \text{ is a vowel of the English alphabet} \}$

$B = \{ x \mid x \text{ is a consonant of the English alphabet} \}$

Determine (in roster notation)

a) $A \cap B$

b) $A \cup B$

c) $A - B$

(2) $A = \{ 1, 2, 3, 5, 6 \}$

$B = \{ 0, 4, 5 \}$

Determine (in roster notation)

a) $B - A$

b) $A - B$

c) $A \cup B$

d) $A \times B$

e) $B \times A$

f) $(A \times B) \cap (B \times A)$

(3) $A = \{ a, b, c, d \}$

$B = \{ a, d, c, e, g, h \}$

Determine (in roster notation)

a) $B \cap A$

b) $B - A$

c) $P(B - A)$

d) $P(A \cap B)$

④ $A = \{0, 2, 4, 6, 8, 10\}$

$B = \{0, 1, 2, 3, 4, 5, 6\}$

$C = \{4, 5, 6, 7, 8, 9, 10\}$

Determine (in roster notation)

a) $A \cap B \cap C$

b) $A \cup B \cup C$

c) $(A \cap B) \cup C$

⑤ $A = \{a, b, c, e, g, h\}$

$B = \{b, d, e, f, g\}$

$C = \{h, i, a, b\}$

Determine (in roster notation)

a) $(A \cap B) - (B \cap C)$

b) $A \cap B \cap C$

c) $(A \cup B) - (A \cap C)$