1. Let A, B and C be three sets such that:
Set A = {2, 4, 6, 8, 10, 12}, set B = {3, 6, 9, 12, 15} and set C = {1, 4, 7, 10, 13, 16}.
Find:
(a) A ∪ B

(b) A ∩ B

(c) B ∩ A

(d) B ∪ A

(e) B ∪ C

(f) Is A ∪ B = B ∪ A?

(g) Is B ∩ C = B ∪ C?

2. If A = {1, 3, 7, 9, 10}, B = {2, 5, 7, 8, 9, 10}, C = {0, 1, 3, 10}, D = {2, 4, 6, 8, 10}, and E = {0}
   Let U = {0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12}
Find:
(a) A'

(b) E ∪ D

(c) C ∪ B'

(d) C ∪ D

(e) (B ∪ C)'

(f) A ∩ B

(g) C ∩ D

(h) E ∩ D

(i) C ∩ E'

(j) (B ∩ D)'

(k) (A ∪ B) ∪ (A ∩ B)

(l) (A ∪ B) ∩ (A ∩ B)

3. If $A = \{x \mid x \le 4\}$, $B = \{x \mid -2 < x < 6\}$, $C = \{x \mid -5 \le x < 2\}$

Find (Express each answer in set-builder notation):

(a) $A \cup B$

(b) $A \cup C$

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

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

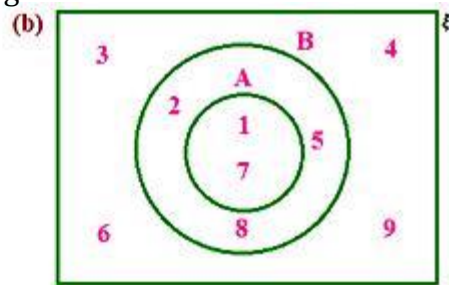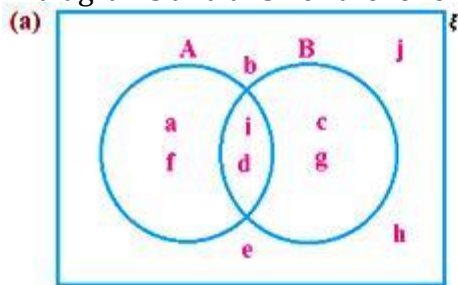Find (Express each answer in interval notation):

(e) $A \cap B$

(f) $A \cap C$

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

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

4. Read the Venn diagrams and answer the following.

(a) A

(b) B

(c) A'

(d) B'

(e) $A \cup B$

(f) $A \cap B$

(g) $(A \cup B)'$

(h) $(A \cap B)'$

5. Where does each of the following belong in the Venn Diagram?

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

Prime Numbers

Even Numbers

Multiples of 3

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