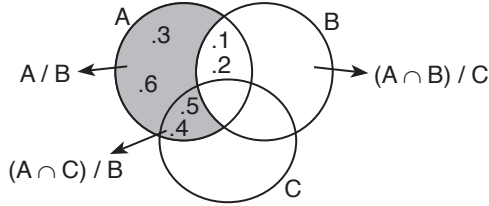


1. Venn şeması çizerek çözelim.



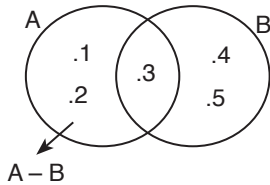
O halde  $A/C = \{1, 2, 3, 6\}$

Cevap: D

2.  $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$   
 $= \{1, 3, 5, 7, 9\} \cap \{1, 2, 3, 4, 5\}$   
 $= \{1, 3, 5\}$   
 $s(A \cup (B \cap C)) = 3$  bulunur.

Cevap: C

3. Venn şeması çizerek çözelim.



$B = \{3, 4, 5\}$

Cevap: C

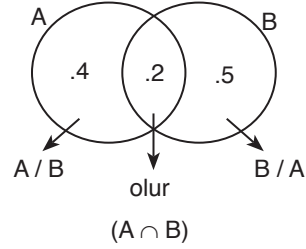
4.  $(A \cup B) \cap (A \cup C)$   
 $= A \cup (B \cap C)$   
 $= \{1, 2, 3, 4, 5\} \cup \{1, 3, 5, 6\}$   
 $= \{1, 2, 3, 4, 5, 6\}$   
 $s[(A \cup B) \cap (A \cup C)] = 6$  bulunur.

Cevap: E

5.  $s(A \cup B) = s(A/B) + s(B/A) + s(A \cap B)$

$$11 = 4 + 5 + s(A \cap B)$$

$$2 = s(A \cap B) \text{ bulunur.}$$



Cevap: A

Cevap: C

6.  $s(A \cup B) = s(A) + s(B) - s(A \cap B)$

$$16 = s(A) + 14 - 13$$

$$15 = s(A)$$

Buna göre,

$$s(A) + s(A^c) = s(E)$$

$$15 + s(A^c) = 19$$

$$s(A^c) = 4 \text{ t'ur.}$$

Cevap: E

7.  $n(A \cup B) = n(A - B) + n(B - A) + n(A \cap B)$

$$24 = 9 + n(B)$$

$$15 = n(B) \text{ dir.}$$

$$n(A) = n(B)$$

$$n(A) = n(A - B) + n(A \cap B)$$

$$15 = 9 + n(A \cap B)$$

$$6 = n(A \cap B)$$

Cevap: B

8.  $A - (A \cap B) = A - B$

$B - (A \cap B) = B - A$

Buna göre

$$n(A \cup B) = n(A - B) + n(B - A) + n(A \cap B)$$

$$68 = k + 2k + k - 4$$

$$72 = 4k$$

$$18 = k$$

$$n(A - B) = 18$$

$$n(B - A) = 36$$

$$n(A \cap B) = 14$$

$$n(A) = n(A - B) + n(A \cap B)$$

$$n(A) = 18 + 14$$

$$= 32 \text{ bulunur.}$$

Cevap: D

9.  $A = \{x / 8 \leq x \leq 1260 \quad x = 4n \quad n \in \mathbb{N}\}$

$B = \{y / 5 < y < 700 \quad y = 6k \quad k \in \mathbb{N}\}$

Buna göre,

$A \cap B = \{z / 8 \leq z < 700 \quad z = 12t \quad t \in \mathbb{N}\} \text{ olsun}$

$A \cap B = \{12, 24, 36, \dots, 696\} \text{ dir.}$

$$n(A \cap B) = \frac{696 - 12}{12} + 1$$

$$= 57 + 1$$

$$= 58 \text{ bulunur.}$$

Cevap: C

10.  $A = \{x / 5 < x \leq 100 \quad x = 2n \quad n \in \mathbb{N}\}$

$B = \{y / 16 < y \leq 120 \quad y = 3k \quad k \in \mathbb{N}\}$

Buna göre,

$A \cap B = \{z / 16 < z \leq 100 \quad z = 6t \quad t \in \mathbb{N}\}$

$A \cap B = \{18, 24, 30, \dots, 96\}$

$$s(A \cap B) = \frac{96 - 18}{6} + 1$$

$$= 13 + 1$$

$$= 14 \text{ bulunur.}$$

Cevap: A

11.  $A = \{x / x \in \mathbb{Z} \quad 1 \leq x \leq 50\}$

$A = \{1, 2, 3, \dots, 50\}$

$B = \{y / y \in \mathbb{Z} \quad 1 \leq y^2 \leq 50\}$

$B = \{1, 2, 3, 4, 5, 6, 7\}$

Buna göre

$A - B = \{1, 2, 3, 4, 5, 6, 7, \dots, 50\} - \{1, 2, 3, 4, 5, 6, 7\}$

$A - B = \{8, 9, 10, \dots, 50\}$

$$s(A - B) = \frac{50 - 8}{1} + 1$$

$$= 43 \text{ bulunur.}$$

Cevap: D

12.  $A = \{x / x < 100 \quad x = 2n \quad n \in \mathbb{Z}^+\}$

$A = \{2, 4, 6, 8, \dots, 98\}$

$$s(A) = \frac{98 - 2}{2} + 1 = 48 + 1 = 49$$

$B = \{x / x < 151 \quad x = 3n \quad n \in \mathbb{Z}^+\}$

$B = \{3, 6, 9, \dots, 150\}$

$$s(B) = \frac{150 - 3}{3} + 1$$

$$= 49 + 1$$

$$s(B) = 50$$

$A \cap B = \{x / x < 100 \quad x = 6n \quad n \in \mathbb{Z}^+\}$

$A \cap B = \{6, 12, 18, \dots, 96\}$

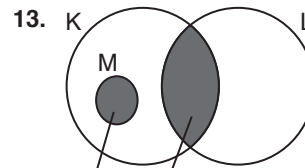
$$s(A \cap B) = \frac{96 - 6}{6} + 1 = 15 + 1 = 16$$

Buna göre

$$s(A \cup B) = s(A) + s(B) - s(A \cap B)$$

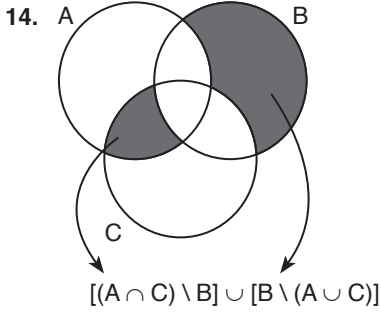
$$s(A \cup B) = 49 + 50 - 16 = 83 \text{ t'ur.}$$

Cevap: E

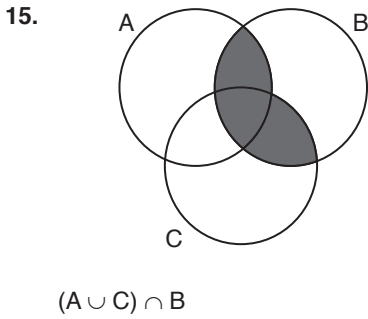


$$M \cup (K \cap L) \text{ veya } (L \cup M) \cap K$$

Cevap: E



Cevap: D



Cevap: C

16.  $K = \{x \in \mathbb{Z} \mid x^2 < 2\}$   
 $K = \{x \in \mathbb{Z} \mid \sqrt{x^2} < \sqrt{2}\}$   
 $K = \{x \in \mathbb{Z} \mid |x| < \sqrt{2}\}$   
 $K = \{x \in \mathbb{Z} \mid -\sqrt{2} < x < \sqrt{2}\}$   
 $K = \{-1, 0, 1\}$  dir.  
 $L = \{x \in \mathbb{Z} \mid x^2 < 18\}$   
 $L = \{x \in \mathbb{Z} \mid \sqrt{x^2} < \sqrt{18}\}$   
 $L = \{x \in \mathbb{Z} \mid |x| < 3\sqrt{2}\}$   
 $L = \{x \in \mathbb{Z} \mid -3\sqrt{2} < x < 3\sqrt{2}\}$   
 $L = \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$   
 Buna göre  
 $L \setminus K = \{-4, -3, -2, 2, 3, 4\}$   
 $n(L / K) = 6$ 'dir.

Cevap: D

17.  $A = \{(x-2, x+3) : x \in \mathbb{Z}\}$   
 $B = \{(-x, x+3) : x \in \mathbb{Z}\}$   
 $x-2 = -x$   
 $2x = 2 \Rightarrow x = 1$   
 $A = \{(-1, 4) : x \in \mathbb{Z}\}$   
 $B = \{(-1, 4) : x \in \mathbb{Z}\}$   
 $A \cap B = (-1, 4) = (y, z)$   
 $y = -1, z = 4$   
 $B = \{(-x, x+3) : x \in \mathbb{Z}\}$   
 $C = \{(-x, 7-x) : x \in \mathbb{Z}\}$   
 $B = \{(-2, 5) : x \in \mathbb{Z}\}$   
 $C = \{(-2, 5) : x \in \mathbb{Z}\}$   
 $B \cap C = \{-2, 5\} = (t, w)$

$$x+3 = 7-x$$

$$2x = 4 \Rightarrow x = 2$$

$$t = -2 \text{ ve } w = 5$$

$$O \text{ halde } y - z + t + w = -1 - 4 - 2 + 5 = -2$$

Cevap: A

18.  $(A' \cap B) \cup (A' \cap B') = A' \cap (B \cup B')$   
 $= A' \cap (E)$   
 $= A'$

$$s(A) + s(A') = s(E)$$

$$5 + s(A') = 20$$

$$s(A') = 15$$

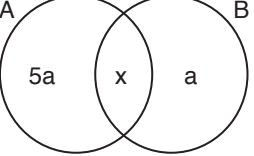
Buna göre;

$$s[(A' \cap B) \cup (A' \cap B')] = s(A') = 15 \text{ tir.}$$

Cevap: B

19.  $s(A - B) = s(B - A) = x$  olsun  
 $s(A \cap B) = 4$  ve  $s(A \cup B) = 16$   
 $s(A \cup B) = s(A - B) + s(B - A) + s(A \cap B)$   
 $16 = x + x + 4$   
 $12 = 2x$   
 $6 = x$ 'dir.  
 $s(A) = s(A - B) + s(A \cap B)$   
 $= 6 + 4$   
 $s(A) = 10$  bulunur.

Cevap: E

20.   $s(A \cap B) = x$  olsun  
 $s(A \setminus B) = 5s(B \setminus A)$   
 $s(B \setminus A) = a$  ise  
 $s(A \setminus B) = 5a$  olur.

$$s(A) = 4s(B)$$

$$5a + x = 4.(x + a)$$

$$5a + x = 4x + 4a$$

$$a = 3x$$

Buna göre  $s(A) = 5a + x = 15x + x = 16x$

$x = 1$  için A kümesinin eleman sayısı en az  $16.x = 16$  bulunur.

Cevap: A