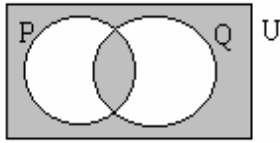


1. Which one of the followings is **not** a subset of the set $A = \{2, (3,4), \{1\}, 3, 5\}$?
- A) $\{2\}$ B) $\{(3,4)\}$ C) $\{1\}$
 D) $\{3\}$ E) $\{3,5\}$
2. A and B are two nonempty sets such that $A \setminus B = \{2, a, b\}$, $A \cap B = \{3, d\}$ and $A \cup B = \{1, 2, 3, a, b, d\}$. Which one of the followings is the set B?
- A) $\{1, 2, 3, d\}$ B) $\{1, 3, d\}$
 C) $\{a, b, d\}$ D) $\{3, a, b, d\}$
 E) $\{2, 3, d\}$
3. Which one of the followings is the set $(A \cap B) \cup (C \cap A)$, if $A = \{a, b, c\}$ and $B \cup C = \{c, d, e, f\}$?
- A) $\{a, b\}$ B) $\{c\}$ C) $\{b, c\}$
 D) $\{e, d\}$ E) $\{a, b, c, d, e, f\}$
4. The sets $A = \{a, b, c\}$, $B = \{a, c, e, f\}$ and $C = \{b, e, f\}$ are given. $(B \cap C) - A = ?$
- A) $\{e\}$ B) $\{a, e\}$ C) $\{e, f\}$ D) $\{a, c\}$ E) $\{b\}$
5. A and B are two sets. The number of the elements of the sets $A - B$, $A \cap B$ and $A \cup B$ are 3, 4 and 9, respectively. If $n(B) = x$, then find $n(A)$.
- A) $\frac{x}{6}$ B) $\frac{2x}{3}$ C) x D) $\frac{7x}{6}$ E) $2x$
6. If $n(A \cup B \cup C) = 23$, $n(A \cup C) = 18$ and $n(B) = 7$, then find $n((A \cup C) - B)$.
- A) 17 B) 16 C) 14 D) 12 E) 10
7. A and B are any two sets. If the number of subsets of A and $B - A$ are 16 and 8, respectively, find the maximum number of the elements of the set B.
- A) 2 B) 4 C) 5 D) 6 E) 7
8. Sets A and B are not disjoint sets. The number of elements in the set A is 10 and the number of elements in the set $A \cup B$ is 13. Find the minimum number of the subsets of the set B.
- A) 64 B) 32 C) 16 D) 8 E) 4
9. If $A \cup B = \{0, 1, 2, 3, 4, 5, 6\}$, $A \cap B = \{1, 2, 3\}$ and $A - B = \{0, 5\}$, then the set B is
- A) $\{1, 2, 4\}$ B) $\{1, 2, 3, 4, 6\}$
 C) $\{2, 3, 4, 6\}$ D) $\{1, 2, 4, 6\}$
 E) $\{1, 2, 3, 5, 6\}$
10. If $A' = \{3, 5, 7, 8, 9\}$, $B = \{2, 3, 4, 5, 8, 10\}$ and $B' = \{1, 6, 7, 9\}$, then which one of the followings is the set A?
- A) $\{1, 2, 3, 4, 5\}$ B) $\{1, 2, 4, 8, 9\}$
 C) $\{1, 6, 7, 10\}$ D) $\{1, 2, 4, 6, 10\}$
 E) $\{1, 2, 4, 7, 9\}$
11. The sets A and B are two subsets of the universal set U. If $n(U) = 24$, $n(A' \cap B) = 5$ and $n(A) = 15$, then find $n(A' \cap B')$.
- A) 4 B) 9 C) 10 D) 15 E) 17
12. A, B and C are three sets. If $n(A) = 15$, $n(B) = 7$ and $n(C) = 10$, then find the maximum number of elements of the set $(A \cup B) \cap (A \cup C)$.
- A) 20 B) 21 C) 22 D) 23 E) 25
13. A and B are two sets. If $n(B) = 14$, $n(A \setminus B) = 11$ and the number of subsets of $A \cap B$ is 64, what is $n(A \cup B) = ?$
- A) 25 B) 28 C) 32 D) 35 E) 38
14. A and B are two subsets of the universal set U. If $A \subset B$, which one of the followings is equal to $(A \cap B) \cup (A \cup U)$?
- A) \emptyset B) A C) B D) $A \cup B$ E) U
15. The set $A \cup B$ has 127 proper subsets and $A \cap B$ has 5 subsets having at most 1 element. If $n(A) = 6$, find $n(B) = ?$
- A) 2 B) 3 C) 4 D) 5 E) 6

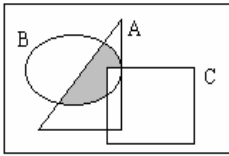
16.



Which one of the following expressions defines the shaded area?

- A) $(P \cap Q)'$ B) $(P \cup Q)'$ C) $P \cap Q'$
 D) $(P \cap Q) \cup (P' \cap Q')$
 E) $(P \cup Q') \cap (P \cup Q)$

17.



Which one of the following expressions defines the shaded area?

- A) $A \cap B \cap C$ B) $B \setminus (A \cap C)$ C) $(A \cup C) \setminus B$
 D) $B \cap (A \cup C)$ E) $(A \cap B) \setminus C$

18. The set $A = \{x \mid 500 \geq x \geq 1, x \in A\}$ is given. Find the number of elements of the set A, which are divisible by 3 and not divisible by 7?

- A) 143 B) 140 C) 95 D) 62 E) 48

19. In a group of students, the number of students speaking english or french is 15, speaking only english is 4, the number of students who cannot speak french is 7 and english is 8. Find the number of students speaking both of the languages?

- A) 4 B) 5 C) 6 D) 7 E) 8

20. In a classroom, students can speak at most two languages. Students speaking english can also speak french and the students speaking turkish can also speak german. If the number of students speaking two languages is 15 and the number of students speaking at most one language is 7, then find the number of students in the classroom.

- A) 8 B) 15 C) 22 D) 29 E) 37

21. In a class of 43 students, every student, that can play basketball, can also play football. The number of students that can play basketball is % 30 of the number of students that can play football. If there are 3 students that can not play any of the two sports, then find the number of the students that can only play football.

- A) 24 B) 26 C) 28 D) 30 E) 32