

SETS

Set 2:

1. If every element of set A is also an element of set B, then:

- a) A is a superset of B
- b) B is a subset of A
- c) A is a subset of B
- d) A and B are disjoint

2. The symbol ' \subseteq ' stands for:

- a) Belongs to
- b) Subset of
- c) Superset of
- d) Proper subset of

3. Which of the following is TRUE for any set A?

- a) $A \subset A$
- b) $A \subseteq A$
- c) $\emptyset \notin A$
- d) $A \in A$

4. The empty set is a subset of:

- a) Itself only
- b) Every set
- c) No set
- d) Only infinite sets

5. If $A = \{1, 2, 3\}$ and $B = \{1, 2, 3, 4, 5\}$, then:

- a) $A \subset B$
- b) $B \subset A$
- c) $A = B$
- d) $A \notin B$

6. A set containing only one element is called a:

- a) Empty Set
- b) Singleton Set
- c) Finite Set
- d) Infinite Set

7. Let $A = \{2, 3, 4\}$. Which of the following is a proper subset of A ?

- a) $\{2, 3, 4\}$
- b) $\{1, 2\}$
- c) $\{2, 3\}$
- d) \varnothing

8. The number of subsets of a set containing 3 elements is:

- a) 3
- b) 6
- c) 8
- d) 9

9. The interval $(2, 5]$ represents the set:

- a) $\{x : 2 < x < 5\}$
- b) $\{x : 2 \leq x \leq 5\}$
- c) $\{x : 2 < x \leq 5\}$
- d) $\{x : 2 \leq x < 5\}$

10. The set $\{x : x \in \mathbb{R}, -3 \leq x < 4\}$ in interval form is:

- a) $(-3, 4)$
- b) $[-3, 4)$
- c) $(-3, 4]$
- d) $[-3, 4]$

11. The length of the interval $[-10, 5]$ is:

- a) 5
- b) 10
- c) 15
- d) -5

12. On the number line, the interval $[a, b)$ is represented by:

- a) A line from a to b , with both a and b included
- b) A line from a to b , with a included and b excluded
- c) A line from a to b , with a excluded and b included
- d) A line from a to b , with both a and b excluded

13. Which of the following is a subset of the set of real numbers \mathbb{R} ?

- a) The set of integers \mathbb{Z}
- b) The set of matrices
- c) The set of students in a class
- d) The set of all words in a dictionary

14. The power set of an empty set has how many elements?

- a) 0
- b) 1
- c) 2
- d) Infinite

15. In a Venn diagram, the universal set is represented by a:

- a) Circle
- b) Square
- c) Rectangle
- d) Triangle

16. If $A = \{1, 2\}$ and $B = \{2, 3\}$, then the set of all subsets of $A \cup B$ is:

- a) $\{\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{2,3\}, \{1,2,3\}\}$
- b) $\{\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}\}$
- c) $\{\emptyset, \{1\}, \{2\}, \{1,2\}\}$
- d) $\{\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1,2,3\}\}$

17. If $A \subseteq B$ and $B \subseteq A$, then:

- a) A is a proper subset of B
- b) B is a proper subset of A
- c) $A = B$
- d) A and B are disjoint

18. The total number of elements in the power set of $\{a, b, c\}$ is:

- a) 3
- b) 6
- c) 8
- d) 9

19. Which of these intervals does NOT include the number 3?

- a) (2, 4)
- b) [3, 5]
- c) (3, 6)
- d) (-1, 3)

20. The set of all subsets of a set A is called the:

- a) Super set of A
- b) Power set of A
- c) Union of A
- d) Complement of A

21. If A has 4 elements, how many elements does its power set have?

- a) 4
- b) 8

- c) 16
- d) 32

22. The interval $[-\infty, 5]$ represents the set of all real numbers:

- a) Less than 5
- b) Greater than 5
- c) Less than or equal to 5
- d) Greater than or equal to 5

23. The number of proper subsets of a set with n elements is:

- a) 2^n
- b) $2^n - 1$
- c) $2^n - 2$
- d) 2^{n-1}

24. If $A = \{1, 2\}$, which of the following is NOT a subset of A ?

- a) $\{1\}$
- b) $\{2\}$
- c) $\{1, 2\}$
- d) $\{3\}$

25. The set of real numbers $\{x : 2 \leq x \leq 7\}$ in interval notation is:

- a) $(2, 7)$
- b) $[2, 7)$
- c) $(2, 7]$
- d) $[2, 7]$

26. The power set of a singleton set $\{a\}$ is:

- a) $\{a\}$
- b) $\{\emptyset, a\}$
- c) $\{\emptyset, \{a\}\}$
- d) $\{\{a\}\}$

27. If $A \subseteq B$, which of the following is always true?

- a) $B \subseteq A$
- b) $A \cap B = B$
- c) $A \cup B = B$
- d) $A - B = A$

28. The length of the interval $(-3, 2)$ is:

- a) 5
- b) -1
- c) 1
- d) 6

29. Which of the following is a subset of every set?

- a) The set itself
- b) The universal set
- c) The empty set
- d) The power set

30. The number 4 is included in the interval:

- a) (4, 6)
- b) [1, 4)
- c) $(-\infty, 4)$
- d) [4, 7]

31. If $X = \{a, b, c\}$, then which set is a member of the power set of X ?

- a) a
- b) $\{a\}$
- c) $\{a, b, c, d\}$
- d) $\{a, a\}$

32. The set $\{x : x \in \mathbb{R}, -1 < x \leq 3\}$ can also be written as:

- a) $(-1, 3]$
- b) $[-1, 3]$
- c) $(-1, 3)$
- d) $[-1, 3)$

33. Every set is a subset of:

- a) Its power set
- b) The empty set
- c) Itself
- d) The set of natural numbers

34. The interval $(0, \infty)$ represents:

- a) The set of all real numbers
- b) The set of all positive real numbers
- c) The set of all non-negative real numbers
- d) The set of all integers

35. If $A = \{\phi, \{\phi\}\}$, then the number of subsets of A is:

- a) 1
- b) 2
- c) 3
- d) 4

36. The set of all real numbers x such that $|x| < 2$ is represented by the interval:

- a) $(-2, 2)$
- b) $[-2, 2]$
- c) $(-2, 2]$
- d) $[-2, 2)$

37. In a Venn diagram, two overlapping circles represent sets that are:

- a) Disjoint
- b) Not necessarily disjoint
- c) Equal
- d) Subsets of each other

38. The number of subsets of an empty set is:

- a) 0
- b) 1
- c) 2
- d) Not defined

39. The set of all real numbers except 5 can be written in interval notation as:

- a) $(-\infty, 5) \cup (5, \infty)$
- b) $(-\infty, 5] \cup [5, \infty)$
- c) $(-\infty, \infty)$
- d) $\{5\}'$

40. If A is a proper subset of B, then:

- a) A can be equal to B
- b) A has more elements than B
- c) All elements of A are in B, and B has at least one element not in A
- d) All elements of B are in A

41. The power set of a set always contains:

- a) The set itself
- b) The empty set
- c) Both a and b
- d) Neither a nor b

42. The set of all real numbers greater than or equal to -2 is:

- a) $(-2, \infty)$
- b) $[-2, \infty)$
- c) $(-\infty, -2]$
- d) $(-\infty, -2)$

43. If a set has 5 elements, how many proper subsets does it have?

- a) 5
- b) 25

- c) 32
- d) 31

44. The interval $[a, b]$ is a subset of:

- a) (a, b)
- b) $(a, b]$
- c) $[a, b)$
- d) \mathbb{R} (set of real numbers)

45. In a Venn diagram, the rectangle represents the:

- a) Union of sets
- b) Intersection of sets
- c) Universal set
- d) Complement of a set

46. The set $\{x : x \in \mathbb{Z}, -2 \leq x < 3\}$ in roster form is:

- a) $\{-2, -1, 0, 1, 2\}$
- b) $\{-2, -1, 0, 1, 2, 3\}$
- c) $\{-1, 0, 1, 2\}$
- d) $\{-2, -1, 0, 1\}$

47. Which of the following intervals has the greatest length?

- a) $(0, 1)$
- b) $[0, 10]$
- c) $(-5, 0)$
- d) $(100, 101)$

48. If every subset of a set is also a subset of another set, then:

- a) The two sets are equal
- b) The first set is a subset of the second
- c) The second set is a subset of the first
- d) No conclusion can be drawn

49. The number of elements in the power set of a set with 0 elements is:

- a) 0
- b) 1
- c) 2
- d) Not defined

50. The set of all subsets of a set is called the:

- a) Super set
- b) Power set
- c) Universal set
- d) Complement set

Set 2:

1. c) A is a subset of B
2. b) Subset of
3. b) $A \subseteq A$
4. b) Every set
5. a) $A \subset B$
6. b) Singleton Set
7. c) $\{2, 3\}$
8. c) 8
9. c) $\{x : 2 < x \leq 5\}$
10. b) $[-3, 4)$
11. c) 15
12. b) A line from a to b, with a included and b excluded
13. a) The set of integers \mathbb{Z}
14. b) 1
15. c) Rectangle
16. d) $\{\emptyset, \{1\}, \{2\}, \{3\}, \{1,2\}, \{1,3\}, \{2,3\}, \{1,2,3\}\}$
17. c) $A = B$
18. c) 8
19. d) $(-1, 3)$
20. b) Power set of A
21. c) 16
22. c) Less than or equal to 5
23. b) $2^n - 1$
24. d) $\{3\}$
25. d) $[2, 7]$
26. c) $\{\emptyset, \{a\}\}$
27. c) $A \cup B = B$
28. a) 5
29. c) The empty set
30. d) $[4, 7]$
31. b) $\{a\}$
32. a) $(-1, 3]$
33. c) Itself
34. b) The set of all positive real numbers

- 35. d) 4
- 36. a) $(-2, 2)$
- 37. b) Not necessarily disjoint
- 38. b) 1
- 39. a) $(-\infty, 5) \cup (5, \infty)$
- 40. c) All elements of A are in B, and B has at least one element not in A
- 41. c) Both a and b
- 42. b) $[-2, \infty)$
- 43. d) 31
- 44. d) \mathbb{R} (set of real numbers)
- 45. c) Universal set
- 46. a) $\{-2, -1, 0, 1, 2\}$
- 47. b) $[0, 10]$
- 48. b) The first set is a subset of the second
- 49. b) 1
- 50. b) Power set

www.animo