

Python Set Questions by Infosmart Solutions

1. Create a set with numbers input by the user between 1 to 10 and remove even numbers.

Test Case 1:

- Input: `set(range(1,11))`
- Expected Output: `{1, 3, 5, 7, 9}`

Test Case 2:

- Input: `{2,4,6,8,10}`
- Expected Output: `set()`

Test Case 3:

- Input: `{1,2,3,4,5}`
- Expected Output: `{1,3,5}`

2. Write a program to find union, intersection, and difference of two sets.

Test Case 1:

- Input: `A={1,2,3}, B={3,4,5}`
- Expected Output: Union=`{1,2,3,4,5}`, Intersection=`{3}`, Difference(A-B)=`{1,2}`

Test Case 2:

- Input: `A={10,20}, B={20,30}`
- Expected Output: Union=`{10,20,30}`, Intersection=`{20}`, Difference(A-B)=`{10}`

Test Case 3:

- Input: `A={1}, B={1}`
- Expected Output: Union=`{1}`, Intersection=`{1}`, Difference(A-B)=`set()`

3. Write a Python code to check if two sets are disjoint.

Test Case 1:

- Input: `A={1,2}, B={3,4}`
- Expected Output: `True`

Test Case 2:

- Input: A={1,2}, B={2,3}
- Expected Output: False

Test Case 3:

- Input: A=set(), B={1}
- Expected Output: True

4. Write a Python program to add and remove elements from a set.

Test Case 1:

- Input: s={1,2}; add(3); remove(2)
- Expected Output: {1,3}

Test Case 2:

- Input: s=set(); add(5)
- Expected Output: {5}

Test Case 3:

- Input: s={10,20}; remove(30)
- Expected Output: KeyError or Handle Missing Element

5. Write a program to find the maximum and minimum value in a set.

Test Case 1:

- Input: {1,2,3,4}
- Expected Output: max=4, min=1

Test Case 2:

- Input: {10,20,5}
- Expected Output: max=20, min=5

Test Case 3:

- Input: {7}
- Expected Output: max=7, min=7

6. Write a Python code to convert a list with duplicate values into a set.

Test Case 1:

- Input: [1,2,2,3]
- Expected Output: {1,2,3}

Test Case 2:

- Input: ['a','a','b']
- Expected Output: {'a','b'}

Test Case 3:

- Input: []
- Expected Output: set()

7. Write a program to check if a given element exists in a set.

Test Case 1:

- Input: s={1,2,3}, x=2
- Expected Output: True

Test Case 2:

- Input: s={'a','b'}, x='c'
- Expected Output: False

Test Case 3:

- Input: s=set(), x=5
- Expected Output: False

8. Write a Python program to find symmetric difference between two sets.

Test Case 1:

- Input: A={1,2,3}, B={3,4,5}
- Expected Output: {1,2,4,5}

Test Case 2:

- Input: A={10,20}, B={20,30}
- Expected Output: {10,30}

Test Case 3:

- Input: A={1,2}, B={1,2}
- Expected Output: set()

9. Write a program to check if a set is a subset of another set.

Test Case 1:

- Input: A={1,2}, B={1,2,3}
- Expected Output: True

Test Case 2:

- Input: A={4,5}, B={1,2,3}
- Expected Output: False

Test Case 3:

- Input: A=set(), B={1}
- Expected Output: True

10. Write a Python code to remove an arbitrary element from a set using pop().

Test Case 1:

- Input: s={1,2,3}
- Expected Output: Removes random element; remaining 2 elements

Test Case 2:

- Input: s={10}
- Expected Output: set()

Test Case 3:

- Input: s=set()
- Expected Output: KeyError

11. Write a Python code to check if two sets are equal.

Test Case 1:

- Input: A={1,2}, B={2,1}
- Expected Output: True

Test Case 2:

- Input: A={1,2}, B={1,3}
- Expected Output: False

Test Case 3:

- Input: A=set(), B=set()
- Expected Output: True

12. Write a Python program to clear all elements from a set.

Test Case 1:

- Input: s={1,2,3}
- Expected Output: set()

Test Case 2:

- Input: s={'x','y'}
- Expected Output: set()

Test Case 3:

- Input: s=set()
- Expected Output: set()

13. Write a Python program to find the difference between two sets using difference() method.

Test Case 1:

- Input: A={1,2,3}, B={2}
- Expected Output: {1,3}

Test Case 2:

- Input: A={5,6}, B={5,6}
- Expected Output: set()

Test Case 3:

- Input: A={10,20}, B={30,40}
- Expected Output: {10,20}

14. Write a Python code to create a frozen set and try to add elements to it.

Test Case 1:

- Input: `fs=frozenset({1,2,3}); fs.add(4)`
- Expected Output: `AttributeError`

Test Case 2:

- Input: `fs=frozenset()`
- Expected Output: `frozenset()`

Test Case 3:

- Input: `type(fs)`
- Expected Output: `<class 'frozenset'>`

15. Write a Python program to find elements that are common in two sets and also divisible by a given number.

Test Case 1:

- Input: `A = {2, 4, 6, 8}`
`B = {3, 4, 6, 9}`
`n = 2`
- Expected Output: `{4, 6}`

Test Case 2:

- Input: `A = {10, 15, 20}`
`B = {5, 10, 25}`
`n = 5`
- Expected Output: `{10}`

Test Case 3:

- Input: `A = {1, 3, 5}`
`B = {2, 4, 6}`
`n = 2`
- Expected Output: `set()`

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