**📌 Beginner Set Questions**

**1.What is a set in Python?**

A **set** is an **unordered** collection of **unique** elements.

my\_set = {1, 2, 3, 4}

print(my\_set) # Output: {1, 2, 3, 4}

✅ **Key Points:**

* No duplicate values
* Unordered
* Mutable (we can add/remove elements)

**2. How do you create a set?**

✅ Using {} or set().

my\_set1 = {1, 2, 3}

my\_set2 = set([4, 5, 6])

print(my\_set1, my\_set2) # Output: {1, 2, 3} {4, 5, 6}

🚫 Empty {} creates a dictionary, so use set().

**3. Can a set have duplicate values?**

❌ No. Sets **automatically remove duplicates**.

my\_set = {1, 2, 2, 3, 4, 4}

print(my\_set) # Output: {1, 2, 3, 4}

**4. How do you check if an element is in a set?**

Use the in keyword.

my\_set = {1, 2, 3}

print(2 in my\_set) # Output: True

print(5 in my\_set) # Output: False

**5. How do you add an element to a set?**

Use .add().

my\_set = {1, 2}

my\_set.add(3)

print(my\_set) # Output: {1, 2, 3}

**6. How do you add multiple elements to a set?**

Use .update().

my\_set = {1, 2}

my\_set.update([3, 4, 5])

print(my\_set) # Output: {1, 2, 3, 4, 5}

**7. How do you remove an element from a set?**

✅ .remove() raises an error if the element is missing.

my\_set = {1, 2, 3}

my\_set.remove(2)

print(my\_set) # Output: {1, 3}

✅ .discard() does **not** raise an error.

my\_set.discard(5) # No error even if 5 is not in the set

**8. How do you remove all elements from a set?**

Use .clear().

my\_set = {1, 2, 3}

my\_set.clear()

print(my\_set) # Output: set()

**9. What is the difference between discard() and remove()?**

| **Method** | **Removes Element?** | **Error if Missing?** |
| --- | --- | --- |
| remove(x) | ✅ Yes | ❌ Yes (KeyError) |
| discard(x) | ✅ Yes | ✅ No |

**10. How do you delete a set?**

Use del.

my\_set = {1, 2, 3}

del my\_set

print(my\_set) # ❌ NameError: name 'my\_set' is not defined

**11. How do you find the length of a set?**

Use len().

my\_set = {1, 2, 3}

print(len(my\_set)) # Output: 3

**12. How do you find the union of two sets?**

Use | or .union().

A = {1, 2, 3}

B = {3, 4, 5}

print(A | B) # Output: {1, 2, 3, 4, 5}

**13. How do you find the intersection of two sets?**

Use & or .intersection().

print(A & B) # Output: {3}

**14. How do you find the difference of two sets?**

Use - or .difference().

print(A - B) # Output: {1, 2}

**15. How do you find the symmetric difference of two sets?**

Use ^ or .symmetric\_difference().

print(A ^ B) # Output: {1, 2, 4, 5}

**16. How do you check if a set is a subset of another set?**

Use .issubset().

X = {1, 2}

Y = {1, 2, 3, 4}

print(X.issubset(Y)) # Output: True

**17. How do you check if a set is a superset of another set?**

Use .issuperset().

print(Y.issuperset(X)) # Output: True

**18. How do you copy a set?**

Use .copy().

A = {1, 2, 3}

B = A.copy()

print(B) # Output: {1, 2, 3}

**19. How do you convert a list to a set?**

Use set().

my\_list = [1, 2, 2, 3, 3, 4]

my\_set = set(my\_list)

print(my\_set) # Output: {1, 2, 3, 4}

**20. How do you convert a set to a list?**

Use list().

my\_set = {1, 2, 3}

my\_list = list(my\_set)

print(my\_list) # Output: [1, 2, 3]

📌 **Advanced Beginner**

**21. Can a set contain duplicate elements?**

❌ No, sets only store unique elements.

my\_set = {1, 2, 2, 3}

print(my\_set) # Output: {1, 2, 3}

✅ Python automatically removes duplicates when storing elements in a set.

**22. Can a set contain different data types?**

✅ Yes, a set can contain integers, strings, tuples, etc., but not lists or dictionaries.

my\_set = {1, "hello", (2, 3)}

print(my\_set) # Output: {1, 'hello', (2, 3)}

❌ Lists and dictionaries are not allowed because they are mutable (can be changed).

my\_set = {[1, 2], "hello"}

# ❌ TypeError: unhashable type: 'list'

**23. How do you check if two sets are disjoint (no common elements)?**

Use .isdisjoint().

A = {1, 2, 3}

B = {4, 5, 6}

print(A.isdisjoint(B)) # Output: True (because A and B have no common elements)

**24. What happens when you take the union of overlapping sets?**

The union operation removes duplicates and combines both sets.

A = {1, 2, 3}

B = {3, 4, 5}

print(A | B) # Output: {1, 2, 3, 4, 5}

**25. How do you update a set with another set?**

Use .update().

A = {1, 2}

B = {3, 4}

A.update(B)

print(A) # Output: {1, 2, 3, 4}

**26. How do you find the maximum and minimum elements in a set?**

Use max() and min().

numbers = {3, 1, 7, 5}

print(max(numbers)) # Output: 7

print(min(numbers)) # Output: 1

**27. How do you remove an arbitrary (random) element from a set?**

Use .pop().

A = {10, 20, 30}

A.pop()

print(A) # Removes and prints a random element

✅ Since sets are unordered, .pop() removes a random element.

**28. What is the difference between remove() and pop() in sets?**

| Method | Removes Specific Element? | Raises Error If Missing? | Removes Random Element? |
| --- | --- | --- | --- |
| remove(x) | ✅ Yes | ❌ Yes (KeyError) | ❌ No |
| pop() | ❌ No | ✅ No | ✅ Yes |

29. How do you check the number of elements in a set?

Use len().

A = {1, 2, 3}

print(len(A)) # Output: 3

**30. How do you find common elements between multiple sets?**

Use .intersection().

A = {1, 2, 3}

B = {2, 3, 4}

C = {3, 4, 5}

print(A.intersection(B, C)) # Output: {3}

**31. How do you find elements that are only in one set but not the others?**

Use .difference().

print(A.difference(B)) # Output: {1} (elements in A but not in B)

**32. How do you find elements that are unique in multiple sets?**

Use .symmetric\_difference().

print(A.symmetric\_difference(B)) # Output: {1, 4}

✅ It keeps only the elements that are unique in each set.

**33. What is the difference between .difference() and .symmetric\_difference()?**

| Method | Returns Elements In | Removes Common Elements? |
| --- | --- | --- |
| .difference() | First set only | ❌ No |
| .symmetric\_difference() | Either set, but not both | ✅ Yes |

**34. How do you create a frozen set?**

A frozenset is an immutable version of a set.

A = frozenset([1, 2, 3])

print(A) # Output: frozenset({1, 2, 3})

✅ Cannot be modified (no .add() or .remove()).

**35. How do you check if a set is equal to another set?**

Use ==.

A = {1, 2, 3}

B = {3, 2, 1}

print(A == B) # Output: True (order doesn't matter)

**36. How do you create a set with elements from multiple sets?**

Use .union().

C = A.union(B)

print(C) # Output: {1, 2, 3}

**37. How do you check if a set contains all elements of another set?**

Use .issuperset().

A = {1, 2, 3, 4}

B = {2, 3}

print(A.issuperset(B)) # Output: True

**38. How do you remove multiple elements from a set?**

Use .difference\_update().

A = {1, 2, 3, 4}

A.difference\_update({2, 3})

print(A) # Output: {1, 4}

**39. What is the advantage of using a set over a list?**

✅ Faster lookups (O(1) instead of O(n) for lists).  
✅ Unique values only (no duplicates).  
✅ Mathematical operations like union and intersection.

**40. How do you iterate over a set?**

Use a for loop.

A = {1, 2, 3}

for item in A:

print(item)