Java Collections & Inbuilt Methods Cheat Sheet

1. String Methods (with Output)

```
String s = "ZohoJava";
s.length();                          // Output: 8
s.charAt(2);                          // Output: 'h'
s.indexOf("Java");           // Output: 4
s.substring(0, 4);           // Output: "Zoho"
s.toLowerCase();             // Output: "zohojava"
s.toUpperCase();             // Output: "ZOHOJAVA"
s.equals("ZohoJava");        // Output: true
s.equalsIgnoreCase("zohojava");// Output: true
s.contains("Java");          // Output: true
s.replace("Java", "DSA");    // Output: "ZohoDSA"
s.startsWith("Zo");          // Output: true
s.endsWith("va");            // Output: true
s.trim();                    // Output: "ZohoJava" (if spaces)
s.split("o");                // Output: ["Z", "h", "Java"]
String.join("-", "a", "b");     // Output: "a-b"
```

2. StringBuilder / StringBuffer (with Output)

```
StringBuilder sb = new StringBuilder("Zoho");
sb.append("Java");           // Output: "ZohoJava"
sb.insert(2, "X");           // Output: "ZoXhoJava"
sb.delete(1, 3);             // Output: "ZhoJava"
sb.reverse();                // Output: "avaJohZ"
sb.setCharAt(0, 'A');        // Output: "AvaJohZ"
```

3. Math Methods (with Output)

```
Math.max(10, 20);           // Output: 20
Math.min(10, 20);           // Output: 10
Math.abs(-5);               // Output: 5
Math.sqrt(16);              // Output: 4.0
Math.pow(2, 3);             // Output: 8.0
Math.round(2.6);            // Output: 3
Math.floor(2.9);            // Output: 2.0
Math.ceil(2.1);             // Output: 3.0
Math.random();              // Output: (any number between 0.0 and 1.0)
```

4. Arrays Class (with Output)

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```java
int[] arr = {3, 1, 5, 2};
Arrays.sort(arr);                 // Output: [1, 2, 3, 5]
Arrays.binarySearch(arr, 2);      // Output: 1
Arrays.fill(arr, 10);             // Output: [10, 10, 10, 10]
Arrays.copyOf(arr, 3);            // Output: [10, 10, 10]
Arrays.copyOfRange(arr, 1, 4);    // Output: [10, 10, 10]
Arrays.equals(arr, arr);          // Output: true
```

5. Collections Class (with Output)

```java
List<Integer> list = new ArrayList<>(Arrays.asList(3, 1, 5, 2));
Collections.sort(list);           // Output: [1, 2, 3, 5]
Collections.reverse(list);        // Output: [5, 3, 2, 1]
Collections.max(list);            // Output: 5
Collections.min(list);            // Output: 1
Collections.frequency(list, 2);   // Output: 1
Collections.shuffle(list);        // Output: Random order
Collections.swap(list, 0, 1);     // Output: Swapped list
Collections.fill(list, 100);      // Output: [100, 100, 100, 100]
```

6. List Methods (with Output)

```java
list.add("Zoho");                 // Output: ["Zoho"]
list.add("Java");                 // Output: ["Zoho", "Java"]
list.get(1);                      // Output: Java
list.set(1, "DSA");               // Output: ["Zoho", "DSA"]
list.remove("DSA");               // Output: ["Zoho"]
list.contains("Zoho");            // Output: true
list.indexOf("Zoho");             // Output: 0
list.clear();                     // Output: []
```

7. Set Methods (with Output)

```java
set.add("A");                     // Output: ["A"]
set.add("B");                     // Output: ["A", "B"]
set.add("A");                     // Output: ["A", "B"]
set.contains("B");                // Output: true
set.remove("B");                  // Output: ["A"]
set.size();                       // Output: 1
set.isEmpty();                    // Output: false
```

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8. Map Methods (with Output)

```
map.put(1, "Zoho");            // Output: {1=Zoho}
map.put(2, "Java");            // Output: {1=Zoho, 2=Java}
map.get(1);                    // Output: Zoho
map.containsKey(2);            // Output: true
map.containsValue("Java");     // Output: true
map.remove(2);                 // Output: {1=Zoho}
map.keySet();                  // Output: [1]
map.values();                  // Output: [Zoho]
map.entrySet();                // Output: [1=Zoho]
map.size();                    // Output: 1
```

9. Queue / Deque (with Output)

```
Queue:
q.add(1);                      // Queue: [1]
q.offer(2);                    // Queue: [1, 2]
q.peek();                      // Output: 1
q.poll();                      // Queue after poll: [2]
q.isEmpty();                   // Output: false

Deque:
dq.addFirst(10);               // Deque: [10]
dq.addLast(20);                // Deque: [10, 20]
dq.removeFirst();              // Output: 10
dq.removeLast();               // Output: 20
```

10. Wrapper Classes (with Output)

```
Integer.parseInt("123");       // Output: 123
String.valueOf(123);           // Output: "123"
Double.parseDouble("12.5");    // Output: 12.5
Character.isDigit('5');        // Output: true
Character.isLetter('A');       // Output: true
Character.toLowerCase('A');    // Output: 'a'
Character.toUpperCase('a');    // Output: 'A'
```

11. Conversions (with Output)

```
Arrays.asList(arr);            // Output: [1, 2, 3]
list.toArray(new String[0]);   // Output: String[]
```

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```
str.toCharArray();              // Output: ['Z','o','h','o']
new String(charArray);          // Output: "Zoho"
new HashSet<>(list);            // Output: unique elements
new ArrayList<>(set);           // Output: list from set
```