

Q1 [Interview] What is a for loop?

Ans: Used to run a block of code a specific number of times.

Q2 [Interview] What is a while loop?

Ans: Runs a block while a condition is true.

Q3 [Interview] Syntax of for loop?

Ans: for (init; condition; increment) { // code }

Q4 [Interview] Syntax of while loop?

Ans: while (condition) { // code }

Q5 [Interview] When to use while over for?

Ans: Use while when number of iterations is unknown.

Q6 [Interview] What is an infinite loop?

Ans: A loop that never ends due to missing exit condition.

Q7 [Interview] What is a loop counter?

Ans: A variable used to track iteration count.

Q8 [Interview] What is break used for?

Ans: To exit the loop prematurely.

Q9 [Interview] What is continue used for?

Ans: Skips current iteration and continues loop.

Q10 [Interview] Can loops be nested?

Ans: Yes, one inside another.

Q11 [Interview] What is a do-while loop?

Ans: Executes at least once, then checks condition.

Q12 [Interview] Difference between for and for...in?

Ans: for...in iterates over keys of object.

Q13 [Interview] Difference between for and for...of?

Ans: for...of iterates over values of iterable.

Q14 [Interview] Can we use return inside loop?

Ans: Yes, if inside a function.

Q15 [Interview] How to exit all nested loops?

Ans: Use labeled break.

Q16 [DSA] Print numbers 1 to 10 using for loop.

Ans: Simple increment loop.

```
for (let i = 1; i <= 10; i++) console.log(i);
```

Q17 [DSA] Sum of all even numbers from 1 to N.

Ans: Use loop and check $i \% 2 === 0$.

Q18 [DSA] Print reverse of a number.

Ans: Use while with $\% 10$ and `Math.floor`.

Q19 [DSA] Count digits in a number.

Ans: Loop while $(n > 0)$.

Q20 [DSA] Print factorial of a number.

Ans: Multiply from 1 to n.

Q21 [DSA] Print Fibonacci series.

Ans: Use while loop with previous two numbers.

Q22 [DSA] Check if number is prime.

Ans: Use for loop to check divisibility.

Q23 [DSA] Find GCD of two numbers.

Ans: Use Euclid's algorithm.

Q24 [DSA] Find max in array.

Ans: Loop and track max value.

Q25 [DSA] Find frequency of digit in a number.

Ans: Loop with $\% 10$ and count.

Q26 [DSA] Sum of digits using while.

Ans: Add last digit using $n \% 10$.

Q27 [DSA] Print pattern of stars.

Ans: Use nested for loops.

Q28 [DSA] Reverse array without built-in methods.

Ans: Use for loop.

Q29 [DSA] Check palindrome number using loop.

Ans:

Q30 [DSA] Convert decimal to binary using loop.

Ans:

Q31 [LeetCode] Output: `for(let i=0;i<3;i++){console.log(i)}`

Ans: 0 1 2

Q32 [LeetCode] `while(1<2){ break; }`

Ans: Valid, executes once.

Q33 [LeetCode] `let x = 0; while(x < 3) x++;`

Ans: x becomes 3

Q34 [LeetCode] Infinite loop: `for(;;){}`

Ans: Yes.

Q35 [LeetCode] Use for loop to sum 1-100.

Ans: Use loop and += operator.

Q36 [LeetCode] Can we label loops?

Ans: Yes: outer: for(...)

Q37 [LeetCode] for...in on array?

Ans: Iterates index keys.

Q38 [LeetCode] for...of on array?

Ans: Iterates values.

Q39 [LeetCode] Output: let i=0; do{}while(i>0);

Ans: Runs once.

Q40 [LeetCode] while(null)?

Ans: false -> won't run.

Q41 [Conceptual] Is loop condition checked before iteration?

Ans: Yes for while, no for do-while.

Q42 [Conceptual] What happens with while(true)?

Ans: Infinite loop.

Q43 [Conceptual] Can for loop be written without any expression?

Ans: Yes, for(;;){} is valid.

Q44 [Conceptual] Does break stop loop immediately?

Ans: Yes.

Q45 [Conceptual] Does continue skip to next iteration?

Ans: Yes.

Q46 [Conceptual] Is array.forEach() a loop?

Ans: Yes, functional loop.

Q47 [Conceptual] Can we return from inside a loop?

Ans: Yes if inside a function.

Q48 [Conceptual] Can loops cause stack overflow?

Ans: No, that's recursion.

Q49 [Conceptual] What is loop invariant?

Ans: Condition true throughout loop.

Q50 [Conceptual] Is nested loop $O(n^2)$?

Ans: Yes, if both run n times.