

## 1. Recursive Multiplication

### Question:

What is the output of this pseudocode for  $a = 3$  and  $b = 4$ ?

```
lua
function multiply(a, b)
  if b == 0 then
    return 0
  else
    return a + multiply(a, b - 1)
  end if
end function
```

### Answer:

12

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## 2. Find Maximum Element in Array

### Question:

What will be the output for the array [5, 2, 8, 1, 9]?

```
lua
function findMax(arr)
  max = arr[0]
  for i = 1 to length(arr) - 1 do
    if arr[i] > max then
      max = arr[i]
    end if
  end for
  return max
end function
```

### Answer:

9

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## 3. Fibonacci Series

### Question:

What is the output of the following pseudocode for  $n = 6$ ?

```
lua
function fibonacci(n)
  if n <= 1 then
    return n
  else
    return fibonacci(n-1) + fibonacci(n-2)
  end if
end function
```

**Answer:**

8

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#### 4. Check Prime Number

**Question:**

What will the function return for n = 7?

```
lua

function isPrime(n)
    if n <= 1 then return false
    for i = 2 to n-1 do
        if n mod i == 0 then return false
    end for
    return true
end function
```

**Answer:**

true

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#### 5. Sum of Digits

**Question:**

What will the output be for num = 1234?

```
bash

function sumDigits(num)
    sum = 0
    while num > 0 do
        sum = sum + (num mod 10)
        num = num / 10
    end while
    return sum
end function
```

**Answer:**

10

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## 6. Palindrome String

### Question:

What will the function return for str = "radar"?

sql

```
function isPalindrome(str)
    left = 0
    right = length(str) - 1
    while left < right do
        if str[left] ≠ str[right] then
            return false
        end if
        left = left + 1
        right = right - 1
    end while
    return true
end function
```

### Answer:

true

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## 7. Factorial Calculation

### Question:

What is the output for n = 5?

matlab

```
function factorial(n)
    if n == 0 then
        return 1
    else
        return n * factorial(n - 1)
    end if
end function
```

### Answer:

120

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## 8. Find Second Largest Element

### Question:

What is the second largest number in [12, 5, 9, 1, 17]?

sql

```
function secondLargest(arr)
  first = second = -infinity
  for i = 0 to length(arr)-1 do
    if arr[i] > first then
      second = first
      first = arr[i]
    else if arr[i] > second and arr[i] ≠ first then
      second = arr[i]
    end if
  end for
  return second
end function
```

**Answer:**

12

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## 9. Reverse a String

**Question:**

What will the output be for str = "hello"?

pgsql

```
function reverseString(str)
  rev = ""
  for i = length(str) - 1 to 0 do
    rev = rev + str[i]
  end for
  return rev
end function
```

**Answer:**

"olleh"

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## 10. Find Missing Number in Array

**Question:**

Given array [1, 2, 4, 5, 6], find the missing number assuming it should have numbers from 1 to 6.

bash

```
function findMissing(arr, n)
  total = n*(n+1)/2
  sum = 0
  for i = 0 to length(arr)-1 do
    sum = sum + arr[i]
  end for
  return total - sum
end function
```

**Answer:**

3

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