

# **Tópicos Avançados em Estrutura de Dados**

Atividade 1

[NOME] [RA]

10/03/2020

## Questão 1

a)

$$\text{int } x = 30 \longrightarrow \sigma_{rec} + \sigma_{arm} = \mathbf{2} \quad (1)$$

$$\text{int } i = 0; \longrightarrow \sigma_{rec} + \sigma_{arm} = \mathbf{2} \quad (2)$$

$$i < n; \longrightarrow 2 * \sigma_{rec} + \sigma_{op} = \mathbf{3(n+1)} \quad (3)$$

$$++ i; \longrightarrow 2 * \sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4n} \quad (4)$$

$$x = x + 2 - i \longrightarrow 3 * \sigma_{rec} + 2 * \sigma_{op} + \sigma_{arm} = \mathbf{6} \quad (5)$$

$$\text{Formula} \longrightarrow \mathbf{7n + 13} \quad (6)$$

b)

$$\text{int } abc = 30; \longrightarrow \sigma_{arm} + \sigma_{rec} = \mathbf{2} \quad (1)$$

for

$$\text{int } i = 1 \longrightarrow \sigma_{rec} + \sigma_{arm} \quad (2)$$

$$i < n - 1 \longrightarrow (n - 1) * (3\sigma_{rec} + \sigma_{op} + \sigma_{arm}) \quad (3)$$

$$i ++ \longrightarrow (n - 2) * (2\sigma_{rec} + \sigma_{op} + \sigma_{arm}) \text{abc} * = 2; \longrightarrow 2\sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4} \quad (4)$$

$$\text{abc} ++; \longrightarrow 2\sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4} \quad (5)$$

$$\text{Fórmula} \longrightarrow \mathbf{9n - 3} \quad (6)$$

c)

$$\text{int } x = 30 \longrightarrow \sigma_{arm} + \sigma_{rec} = \mathbf{2} \quad (1)$$

$$\text{int } i = 0 \longrightarrow \sigma_{arm} + \sigma_{rec} = \mathbf{2} \quad (2)$$

$$\text{while}(i < n) \longrightarrow n(\sigma_{rec} + \sigma_{op} + \sigma_{rec}) = \mathbf{3n} \quad (3)$$

$$x = x + 2 - i \longrightarrow \sigma_{arm} + \sigma_{rec} + \sigma_{op} + \sigma_{rec}\sigma_{rec} + \sigma_{op} = \mathbf{6} \quad (4)$$

$$i = i + 1 \longrightarrow \sigma_{arm} + \sigma_{rec} + \sigma_{op} + \sigma_{rec} = \mathbf{4} \quad (5)$$

$$\text{Fórmula} \longrightarrow \mathbf{14 + 3n} \quad (6)$$

d)

$$\text{int } abc = 30; \longrightarrow \sigma_{rec} + \sigma_{arm} = \mathbf{2} \quad (1)$$

$$\text{int } i = 1; \longrightarrow \sigma_{rec} + \sigma_{arm} = \mathbf{2} \quad (2)$$

$$\text{abc} * = 2; \longrightarrow 2\sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4(n-2)} \quad (3)$$

$$\text{abc} ++; \longrightarrow 2\sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4(n-2)} \quad (4)$$

$$i = i + 1; \longrightarrow 2\sigma_{rec} + \sigma_{op} + \sigma_{arm} = \mathbf{4(n-2)} \quad (5)$$

$$\text{while}(i < n - 1); \longrightarrow 3\sigma_{rec} + 2\sigma_{op} = \mathbf{5(n - 3)} \quad (6)$$

$$\text{Fórmula} \longrightarrow \mathbf{17n - 35} \quad (7)$$

## Questão 2

**Primeira linha:**  $int\ resultado = a[n - 1]$   
 $\sigma_{rec}(a) + \sigma_{rec}(n) + \sigma_{rec}(1) + \sigma_{subt} + \sigma_{rec}(a[n - 1]) + \sigma.(calcularoendereco) +$   
 $\sigma_{arm}(em\ int\ resultado);$   
 7 operações.

**Segunda linha:**  $for(i = 0; i < a.length; i++)$   
 $\sigma_{rec}(0) + \sigma_{arm}(emi);$   
 $(a.length + 1) * (\sigma_{rec}(i) + \sigma_{rec}(a.length) + \sigma <);$   
 $(a.length) * (\sigma_{rec}(i) + \sigma_{rec}(1) + \sigma_{soma} + \sigma_{arm}(emi));$   
 $5 + 7 (a.length)$  operações.

**Terceira linha:**  $resultado = resultado * x + a[i]$   
 $(a.length) * (\sigma_{rec}(resultado) + \sigma_{rec}(x) + \sigma_{mult} + \sigma_{rec}(a) + \sigma_{rec}(i) + \sigma.(calculodoendereco) +$   
 $\sigma_{rec}(a[i]) + \sigma_{soma} + \sigma_{arm}(emresultado));$   
 $9 (a.length)$  operações.

.....

**Operações no total:  $12 + 16 (a.length)$**