

Discente: [REDACTED]

- 1) (2 pts) Qual será a saída do seguinte código em C?

```
#include <stdio.h>
#define CALC(a, b) a * b + a
int main() {
    int x = 2;
    int y = 5;
    int z = CALC(x + 1, y - 2);
    printf("z = %d", z);
    return 0;
}
```

Saída: z=12

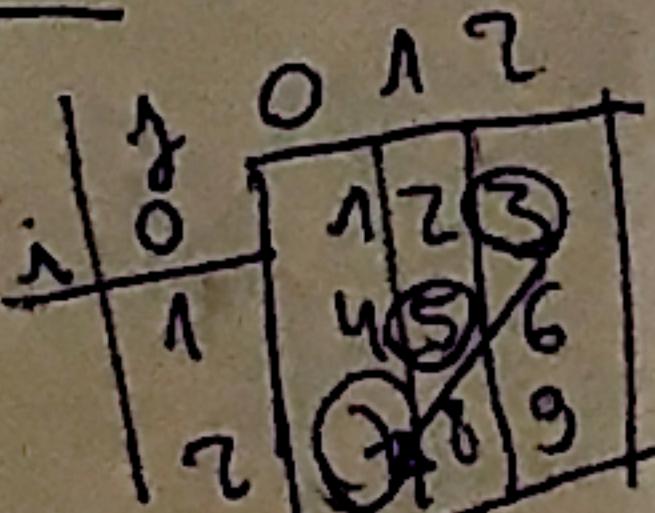
- 2) (3 pts) Implemente uma função recursiva em C (soma\_diagonal\_secundaria) que retorne a soma da diagonal secundária de uma matriz quadrada.

Assinatura da Função:

```
int soma_diagonal_secundaria(int n,
    const int matriz[n][n]);
```

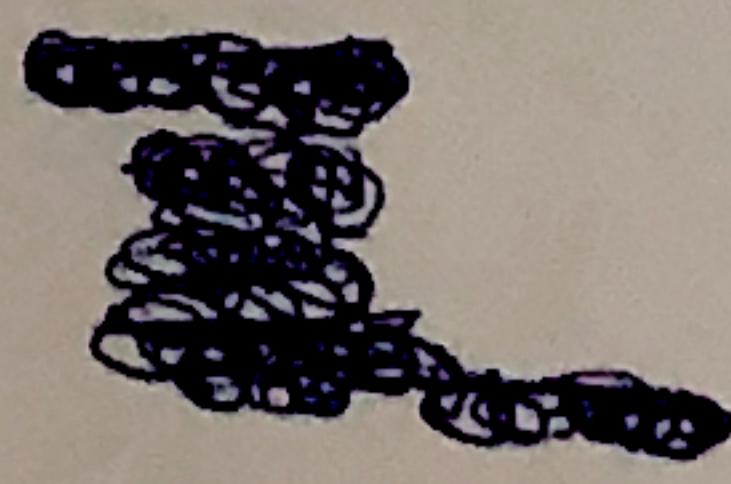
Exemplo:

```
// Para a matriz:
{{1,2,3},{4,5,6},{7,8,9}}
int resultado =
    soma_diagonal_secundaria(3, matriz
    );
// resultado deve conter o valor 15
(3 + 5 + 7)
```



Regras:

- A função deve ser puramente recursiva.
- Não é permitido o uso de laços (for, while).
- O programa deve conter uma função main que declare uma matriz, chame a função e imprima o resultado.



- 3) (5 pts) Escreva uma função chamada ordenarCores que recebe um vetor contendo apenas os números 0, 1 e 2. A função deve reordenar o vetor de forma que todos os 0s venham primeiro, seguidos por todos os 1s e, finalmente, por todos os 2s.

Assinatura da Função:

```
void ordenarCores(int nums[], int
    numSize);
```

- Exemplo 1:

- Vetor de Entrada: [2, 0, 2, 1, 1, 0]*
- Vetor Após a Chamada: [0, 0, 1, 1, 2, 2]*

- Exemplo 2:

$$\text{num}[0] < \text{num}[1] < \text{num}[2]$$

- Vetor de Entrada: [2, 0, 1]*
- Vetor Após a Chamada: [0, 1, 2]*

Regras e Restrições:

- A função qsort da biblioteca padrão ou qualquer outra função de ordenação pronta não é permitida.

~~void ordenarCores(int nums[], int numSize);~~

~~int resultado;~~

~~int i;~~

~~int j;~~

~~int temp;~~

~~int n = numSize;~~

~~int k;~~

~~int l;~~

~~int m;~~

~~int p;~~

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