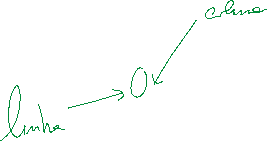
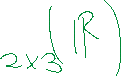
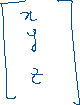
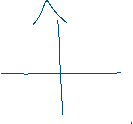
# Aula 2-Matrizes: Definições e conceitos básicos



|  |
| --- |
| **Definição:** |



## Vetor como matriz coluna:



## Designações atribuídas às matrizes:

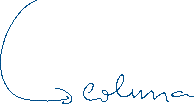
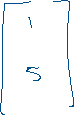
* Igualdade de matrizes



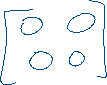
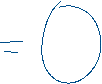
* Matriz quadrada



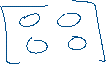
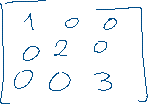
* Matriz linha e matriz coluna



* Matriz nula



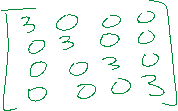
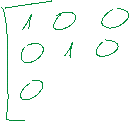
* Matriz diagonal, matriz escalar e matriz identidade



Diagonal principal

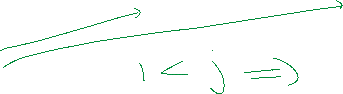
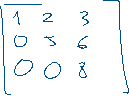
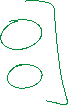
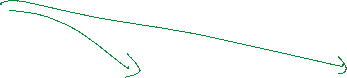


outra diagonal designada por diagonal secundária.

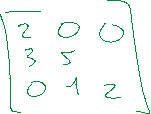


* Matriz triangular

**Superior**



**Inferior**

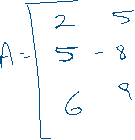


* Matriz transposta e matriz simétrica



|  |  |
| --- | --- |
|  |  |
|  |  |

* Matriz Simétrica



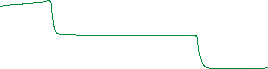
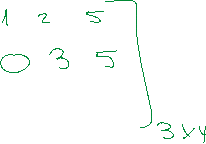
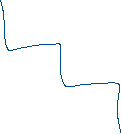
* Matriz na forma escalonada e matriz na forma canónica reduzida por linhas



diz-se na **forma escalonada** se:



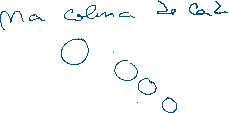




diz-se na **forma canónica reduzida por linhas** se:







## SCILAB:

2+3

A=[1 2 sqrt(5);3 %pi 2]

A=[1 2 sqrt(5);3 %pi 2];

A(1,3)

A(2,2)=1/2

A(1;:)

A(1,:)

A(:,2)

A

B=[1;3]

AL=[A B]

AL=[B A]

A

C=[2 4 6]

[A;C]

C=[2 4]

[A;C]

zeros(5,6)

zeros(3,1)

diag([1 2 3 4])

eye(4,4)

eye(5,4)

eye(4)

A

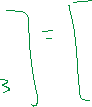
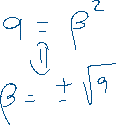
A'

rref(A)

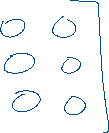
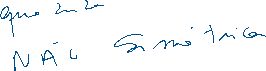
## Exercícios



1.1(pg 23)



1.2(pg 23)



## TPC

1.8(pg 33) Considere as seguintes matrizes:

; ; ;

Calcule:

1. ;
2. ;

* Scilab

B\*D

Introduzir no scilab as matrizes acima indicadas.

TPC-1 Propriedades-Investigar (ESI-PL-8/3)

TPC-2 Aplicações das matrizes (ESI-PL-10/3)

TPC-3 Revisões de Sistemas de Equações Lineares (ESI-PL-10/3)