

Vectorizări

① $x = -250 : 0.1 : 250$ 5001 elem

```
for i = 1 : length(x)
    if ( x(i) >= 0)
        S(i) = sqrt( x(i))
    else
        S(i) = 0
    end
end
```



```
x = -250 : 0.1 : 250 ;
S = sqrt( x ) ;
S( x < 0 ) = 0 ;
```

② $M = \text{magic}(3)$

```
for i = 1:3
    for j = 1:3
        if ( M(i,j) > 4)
            M(i,j) = -M(i,j);
        end
    end
end
```



```
ind = find( M > 4 );
M(ind) = -M(ind);
```

ind. — [v_x v_y]

```

③ for i=1:n
    for j=1:n
        M(i,j) = A(i,j)/B(i,j)*C(i,j);
    end
end

```

⇓

$$M = A ./ (B .* C)$$

```

④ v = 'sunt multe spatii in acest text';
len = length(v)
i = 1;
while (i < len)
    if (v(i) == ' ' & v(i+1) == ' ')
        for j = i : len-1
            v(j) = v(j+1);
        end
        v(len) = 0;
        len = len-1;
    else
        i = i+1;
    end
end

```

solu

```

ind = findstr(v, ' ');
v(ind) = [];

```

⑤

$x = 5;$

for $i = 1:100$

$y = \text{zeros}(100);$

$y(i) = \sin(x^i);$

end

$5^* \text{ones}(n, 1);$

Funcții

>> script.m

function $[] = \text{value}([])$

- dacă nu e specificat subvector vid

fibonacci.m

ex: function $f = \text{fibonacci}(n)$

if $n == 0$

$f = 0;$

elseif $n == 1$

$f = 1;$

else

$f_1 = 0;$

$f_2 = 1;$

for $i = 2:n-1$

$f = f_1 + f_2$

$f_1 = f_2$

$f_2 = f$

end

end

$T(n) = O(n)$

recursiv:

$f = \text{fibonacci}(n-1) +$
 $+ \text{fibonacci}(n-2)$

$T(n) = \begin{cases} 1, & n=0,1 \\ T(n-1) + T(n-2), & \text{altfel} \end{cases}$

$\Downarrow$

$O\left(\left(\frac{1+\sqrt{5}}{2}\right)^n\right)$

function $f = \text{fibonacci}(x)$

$n = \text{length}(x)$

for $i = 1 : n$

$f(i) = \text{fibonacci}(x[i])$

end

$t = \text{zeros}(1, \text{max}(x))$

$t(2) = 1$

for $i = 3 : \text{length}(t)$

$t(i) = t(i-1) + t(i-2)$

end

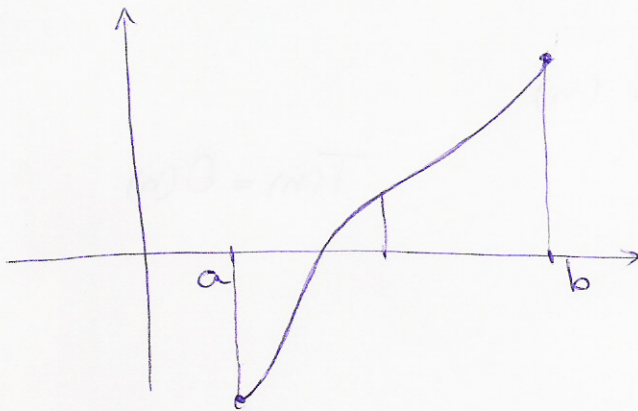
$f = t(x);$

end

Rezolvarea ecuațiilor $f(x) = 0$

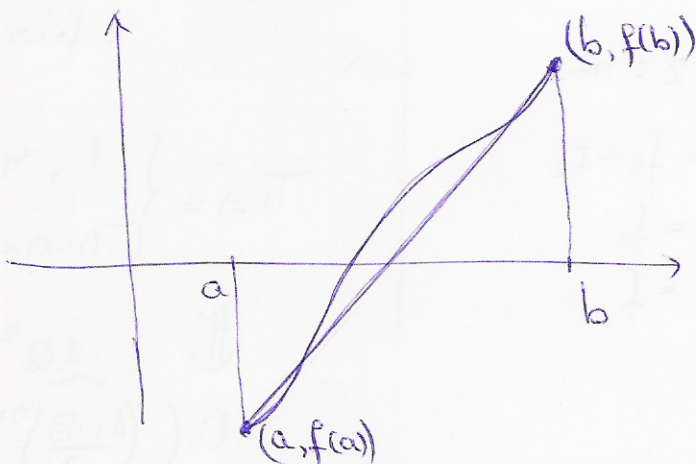
$\mathbb{R}$

a) Bisectie



$f \leftarrow \text{Dorchaux}$
 $[a, b]$

b) Secantei



$$x = \frac{bf(a) - af(b)}{a - b}$$

d)

$$x_{n+1} = x_n - \frac{f(x_n)}{f'(x_n)}$$

, x_0 .

- Met. bei Newton

Solve (' $x * x + x * \sin(x) - 1 = 0$ ') ;