FOR

| ```java
x = 4;
y = x + 2;
for (i=0; i<x; i++) {
  System.out.print(x+" "+y);
  y = y + i;
}
``` | ```java
for (i=1; i<5; i++){
  y = i - 1;
  x = i * 10;
  System.out.print(i);
}
``` | ```java
y = 10;
for (i=0; i<4; i++){
  System.out.print(i);
  y = y + i;
  System.out.println(y);
}
``` |
|---|---|---|
| x   y   i | x   y   i | x   y   i |
| Tela: | Tela: | Tela: |

Handwritten solution

For

$x = 4; \quad y = x+2;$

x	y	i	Tela
4	6	0	4 6
	7	1	4 6
	9	2	4 7
	12	3	4 9
		4	

$for\ (i=1; i<5; i++)$

x	y	i	Tela
10	0	1	1234
20	1	2	
30	2	3	
40	3	4	
		5	

$y = 10; \quad for\ (i=0; i<4; i++)$

x	y	i	Tela
	10	0	010
	11	1	111
	13	2	213
	16	3	316
		4	

MATRIZES E VETORES

```
n = 3;
for (i=0; i<n; i++) {
        for (j=0; j<n; j++) {
                mat[i][j] = 1 + i + j;
        }
}
```

m n

i j

x y

```
      0   1   2   3   4   5
  0
  1
  2
  3
  4
  5
            mat
```

```
  0
  1
  2
  3
  4
  5
   v
```

```
m = 2;
n = 4;
x = 0;
for (i=0; i<m; i++) {
        x = x + i;
        for (j=0; j<n; j++) {
                x = x + j;
                mat[i][j] = x;

        }
}
```

m n

i j

x y

```
      0   1   2   3   4   5
  0
  1
  2
  3
  4
  5
            mat
```

```
  0
  1
  2
  3
  4
  5
   v
```

```
m = 5;
for (i=0; i<m; i++) {
        mat[3][i] = 10;
}
for (i=0; i<m; i++) {
        mat[i][4] = 10 * i;
        mat[i][i] = 50;
}
```

m n

i j

x y

```
      0   1   2   3   4   5
  0
  1
  2
  3
  4
  5
            mat
```

```
  0
  1
  2
  3
  4
  5
   v
```

```
n = 3;
for (i=0; i<n; i++) {
        x = 0;
        for (j=0; j<n; j++) {
                mat[i][j] = i + j;
                x = x + mat[i][j];
        }
        v[i] = x;
}
```

m n

i j

x y

```
      0   1   2   3   4   5
  0
  1
  2
  3
  4
  5
            mat
```

```
  0
  1
  2
  3
  4
  5
   v
```

```
m = 5;
for (i=0; i<m; i++) {
    v[i] = 10 - i;
}
for (i=0; i<m; i++) {
    mat[i][i] = v[i] / 10;
}
```

```
n = 4;
for (i=0; i<n; i++) {
    for (j=0; j<i; j++) {
        mat[i][j] = (i + 1) * 10;
    }
}
```

Matrizes

n = 3; for (i=0; i<n; i++

m	n	i	j			
3	0	0 1 2		1	2	3
	1	0 1 2		2	3	4
	2	0 1 2		3	4	5

m = 2; n = 4; x = 0;

m	n	i	j	x		
2	4	0	0 1 2	0		
		1	3	3	0 1 3 6	
			4	6	7 8 10 13	
			0 1 2 3 4	1 8 10 13		

m = 5; for... mat[3][i]

m	n	i	j					
5		0 1 2 3 4 5		50				0
					50			10
						50		20
		0 1 2 3 4 5		10	10	10 50	30	50

n = 3; for ...

n	i	j	x				
3	0	0 1 2 3	0 1 3 6	0	1	2	3
	1	0 1 2 3	0 1 3 6	1	2	3	6
	2	0 1 2 3 0 1 2 3	0 2 5 9	2	3	4	9

m = 5; for ... ; v[i]=10-i; ...

m	i					v
5	0 1 2 3 4 5 0 1 2 3 4 5	1				10
			0,9			9
				0,8		8
				0,7		7
					0,6	6

n = 4; for ...

n	i	j			
4	0	0			
	1	0 1	20		
	2	0 1 2	30	30	
	3	0 1 2 3	40	40	40
	4				

WHILE

```
x = 0;
while (x < 5) {
  y = x * 3;
  System.out.print(y);
  x = x + 1;
}
System.out.println("Fim");
```

x	y	i

Tela:

```
x = 2;
y = 10;
System.out.println("Olá");
while (x < y) {
  System.out.println(x + "-" + y);
  x = x * 2;
  y = y + 1;
}
```

x	y	i

Tela:

```
x = 4;
y = 0;
i = 0;
while (i < x) {
  i = i + 1;
  y = y + i;
  System.out.print(i);
  System.out.println(y);
}
```

x	y	i

Tela:

While

x = 0; while (x < 5)

x	y	i	Tela
0	0		036912Fim
1	3		
2	6		
3	9		
4	9		
5	12		

x = 2 ; y = 10;

x	y	i	Tela
2	10		Olá
4	11		2-10
8	12		4-11
16	13		8-12

x = 4; y = 0; i = 0;

x	y	i	Tela
4	0	0	11
	1	1	23
	3	2	36
	6	3	410
	10	4	