

```

1 program questao1
2   implicit none
3   real :: v1, v2, v3, v4
4   integer :: ni, nx, ny, i, j, k
5   real, dimension(1000, 1000) :: v
6
7   v1 = 10.0
8   v2 = 100.0
9   v3 = 40.0
10  v4 = 0.0
11  ni = 200
12  nx = 16
13  ny = 11
14
15  do i = 1, nx
16    do j = 1, ny
17      v(i,j) = 0
18    end do
19  end do
20
21  do i = 2, nx-1
22    v(i,1) = v1;
23    v(i,ny) = v3;
24  end do
25
26  do j = 2, ny-1
27    v(i,j) = v4;
28    v(nx,j) = v2
29  end do
30
31  v(1,1) = 0.5*(v1 + v4)
32  v(nx,1) = 0.5*(v1 + v2)
33  v(1,ny) = 0.5*(v3 + v4)
34  v(nx,ny) = 0.5*(v2 + v3)
35
36  do k = 1, ni
37    do i = 2, nx-1
38      do j = 2, ny-1
39        v(i,j) = 0.25*( v(i+1, j) + v(i-1, j) + v(i,j+1) + v(i,j-1) )
40      end do
41    end do
42  end do
43
44  print *, "Value"
45
46  print *, v(6,6)
47  print *, v(9,9)
48  print *, v(11,6)
49  print *, v(9,3)
50 end program questao1
51
52

```