

```

1 program questao1
2   implicit none
3   real :: step, tTarget, tInit, iInit, t, i
4   real :: c, r
5   real, external :: didt
6
7   tInit = 0
8   iInit = 0
9   t = tInit
10  i = iInit
11  tTarget = 1
12  step = 1E-2
13  r = 1E3
14  c = 1E-6
15
16  do while(t<tTarget)
17    i = didt(i, r, c)*step + i
18    t = t + step
19    print *, i, t
20  end do
21
22 end program questao1
23
24 function didt(i, r, c) result(result)
25   implicit none
26   real :: i, r, c
27   real :: result
28   result = -i/(r*c)
29 end function didt

```

```
1 program questao2
2   implicit none
3   real :: step, tTarget, tInit, iInit, t, i, z, f
4   real :: c, l
5   real, external :: dzdt
6
7   tInit = 0
8   iInit = 0
9   t = tInit
10  i = iInit
11  tTarget = 1
12  step = 1E-2
13  l = 1E-3
14  c = 1E-6
15  z = 0
16
17  do while(t<tTarget)
18    i = i + step*z
19    z = dzdt(i, l, c)*step + z
20    t = t + step
21    print *, i, t
22  end do
23
24 end program questao2
25
26 function dzdt(i, l, c) result(result)
27   implicit none
28   real :: i, l, c
29   real :: result
30   result = -i/(l*c)
31 end function dzdt
```