```
> restart;

  # Define parameters
  lambda1 := lambda[1]:
  lambda2 := lambda[2]:
  N0 := N[0]:

  # Define the system of differential equations with explicit functions
  eq1 := diff(N1(t), t) = -lambda1 * N1(t):
  eq2 := diff(N2(t), t) = lambda1 * N1(t) - lambda2 * N2(t):

  # Solve the first differential equation for N1(t)
  sol1 := dsolve({eq1, N1(0) = N0}, N1(t)):

  # Extract the solution for N1(t)
  N1_sol := rhs(sol1):

  # Substitute the solution for N1(t) into the second equation
  eq2_sub := subs(N1(t) = N1_sol, eq2):


      # Solve the second differential equation for N2(t) with initial condition
      N2(0) = 0
  sol2 := dsolve({eq2_sub, N2(0) = 0}, N2(t)):

  # Display the solutions
   sol1, (sol2);
```

$$N1(t) = N_0 \, e^{-\lambda_1 t}, N2(t) = -\frac{N_0 \, \lambda_1 \left(e^{-t(\lambda_1 - \lambda_2)} - 1\right) e^{-\lambda_2 t}}{\lambda_1 - \lambda_2} \qquad (1)$$

```
>
```