```
using SymPy
```

```
using Plots
```

Definindo as variáveis

(t, s, A, B)

```
@syms t s A B
```

Is = 4

```
Is = 4
```

Solucionando a questao

i1_t =

$$Ae^{-t} + Be^{-6t} + 4$$

```
i1_t = Is + (A * exp(-t) + B * exp(-6*t))   # Expressão geral para i1(t)
```

i2_t =

$$1.6e^{-t} - 1.6e^{-6t}$$

```
i2_t = (1.6 * exp(-t) - 1.6 * exp(-6*t))    # Expressão geral para i2(t)
```

eq1 =

$$A + B + 4 = 4$$

```
eq1 = subs(i1_t, t=>0) ~ Is      # Condição inicial i1(t) em t = 0
```

eq2 =

$$\text{True}$$

```
eq2 = subs(i2_t, t=>0) ~ 0 # Condição inicial para i2(t) em t = 0
```

sol = Dict(A)

$\Rightarrow -B$

```
sol = solve([eq1, eq2], [A, B]) # encontra as constantes A e B
```

i1_t_sol =

$$-Be^{-t} + Be^{-6t} + 4$$

```
i1_t_sol = subs(i1_t, sol)  # Substitui os valores de A e B
```

i2_t_sol =

$$1.6e^{-t} - 1.6e^{-6t}$$

```
i2_t_sol = subs(i2_t, sol)  # Substitui os valores de A e B
```

i1_t_simplified =

$$-Be^{-t} + Be^{-6t} + 4$$

```
i1_t_simplified = simplify(i1_t_sol) # Simplifica as expressões
```

i2_t_simplified =

$$1.6e^{-t} - 1.6e^{-6t}$$

```
i2_t_simplified = simplify(i2_t_sol)
```

Gráfico

i1 (generic function with 1 method)

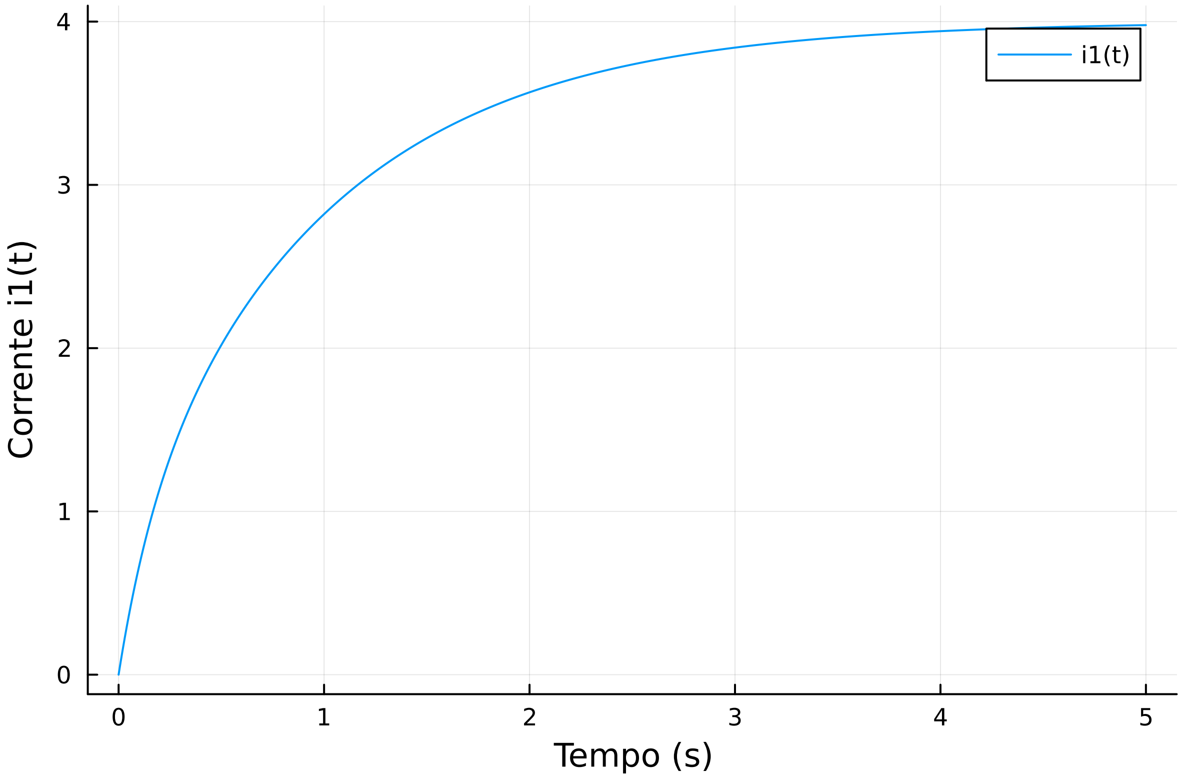
```
i1(t) = 4 + (-3.2*exp(-t) - 0.8*exp(-6*t))
```

i2 (generic function with 1 method)

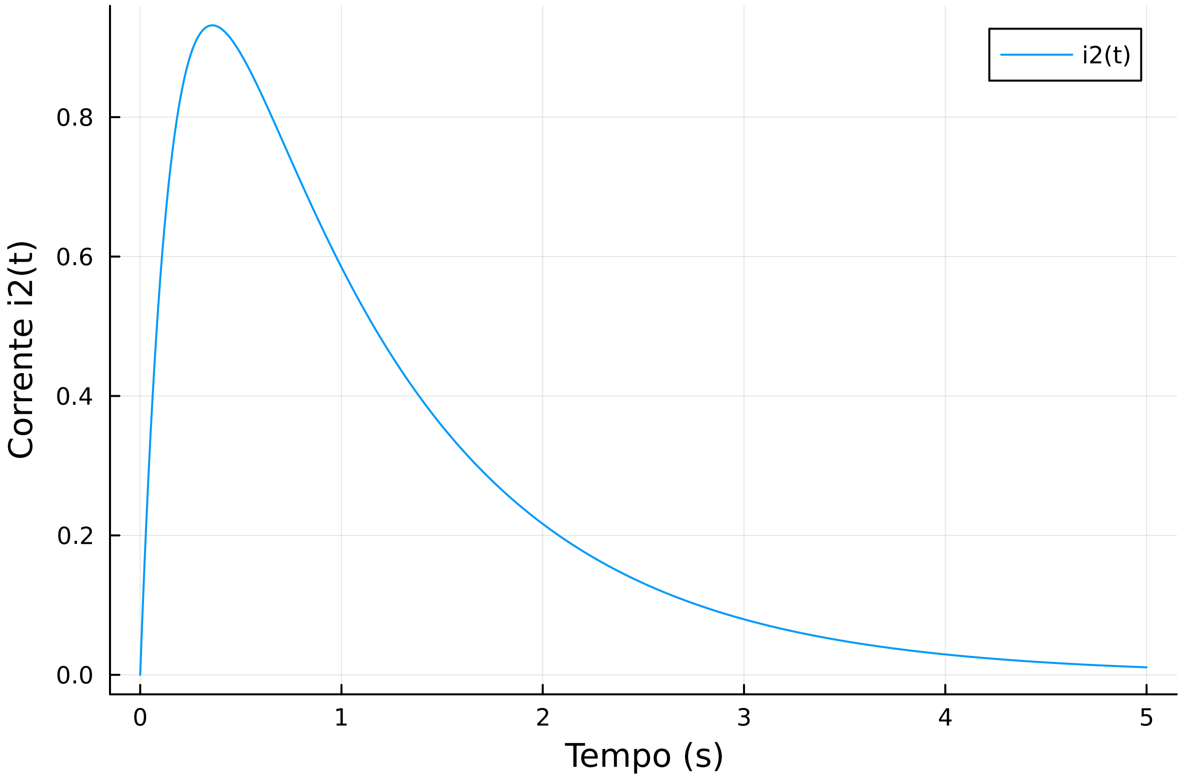
```
i2(t) = (1.6*exp(-t) - 1.6*exp(-6*t))
```

t_values = 0.0:0.01:5.0

```
t_values = 0:0.01:5
```




```
plot(t_values, i1.(t_values), xlabel="Tempo (s)", ylabel="Corrente i1(t)",
label="i1(t)", legend=:topright)
```




```
plot(t_values, i2.(t_values), xlabel="Tempo (s)", ylabel="Corrente i2(t)",
label="i2(t)", legend=:topright)
```