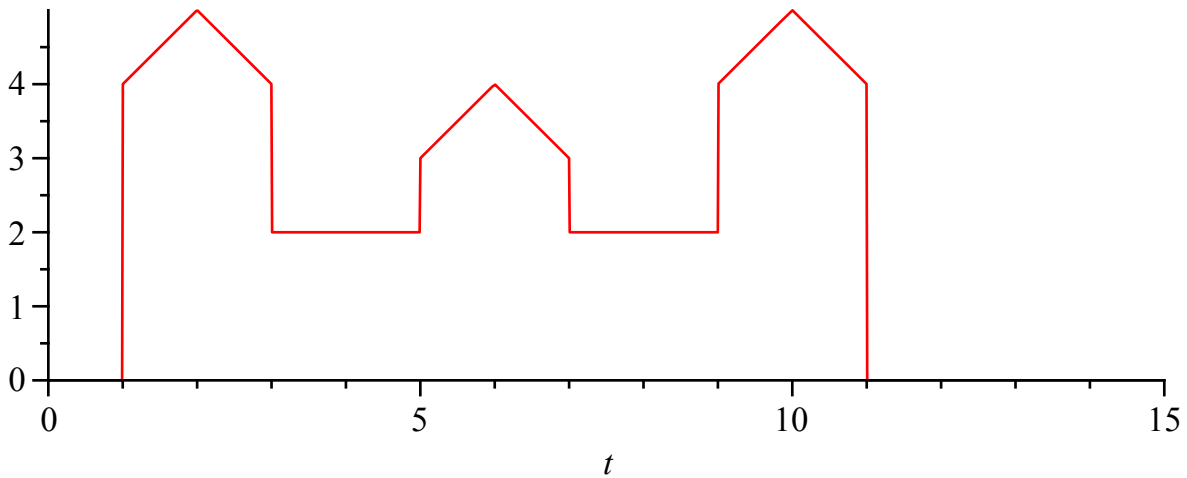


```
> restart
```

```
> Castle := 4·Heaviside(t - 1) + (t - 1)·Heaviside(t - 1) - 2·(t - 2)·Heaviside(t - 2) + (t - 3)·Heaviside(t - 3) - 2·Heaviside(t - 3) + Heaviside(t - 5) + (t - 5)·Heaviside(t - 5) - 2·(t - 6)·Heaviside(t - 6) + (t - 7)·Heaviside(t - 7) - Heaviside(t - 7) + 2·Heaviside(t - 9) + (t - 9)·Heaviside(t - 9) - 2·(t - 10)·Heaviside(t - 10) + (t - 11)·Heaviside(t - 11) - 4·Heaviside(t - 11); plot(Castle, t=0..15, scaling = CONSTRAINED)
```

```
Castle := 4 Heaviside(t - 1) + (t - 1) Heaviside(t - 1) - 2 (t - 2) Heaviside(t - 2) + (t - 3) Heaviside(t - 3) - 2 Heaviside(t - 3) + Heaviside(t - 5) + (t - 5) Heaviside(t - 5) - 2 (t - 6) Heaviside(t - 6) + (t - 7) Heaviside(t - 7) - Heaviside(t - 7) + 2 Heaviside(t - 9) + (t - 9) Heaviside(t - 9) - 2 (t - 10) Heaviside(t - 10) + (t - 11) Heaviside(t - 11) - 4 Heaviside(t - 11)
```



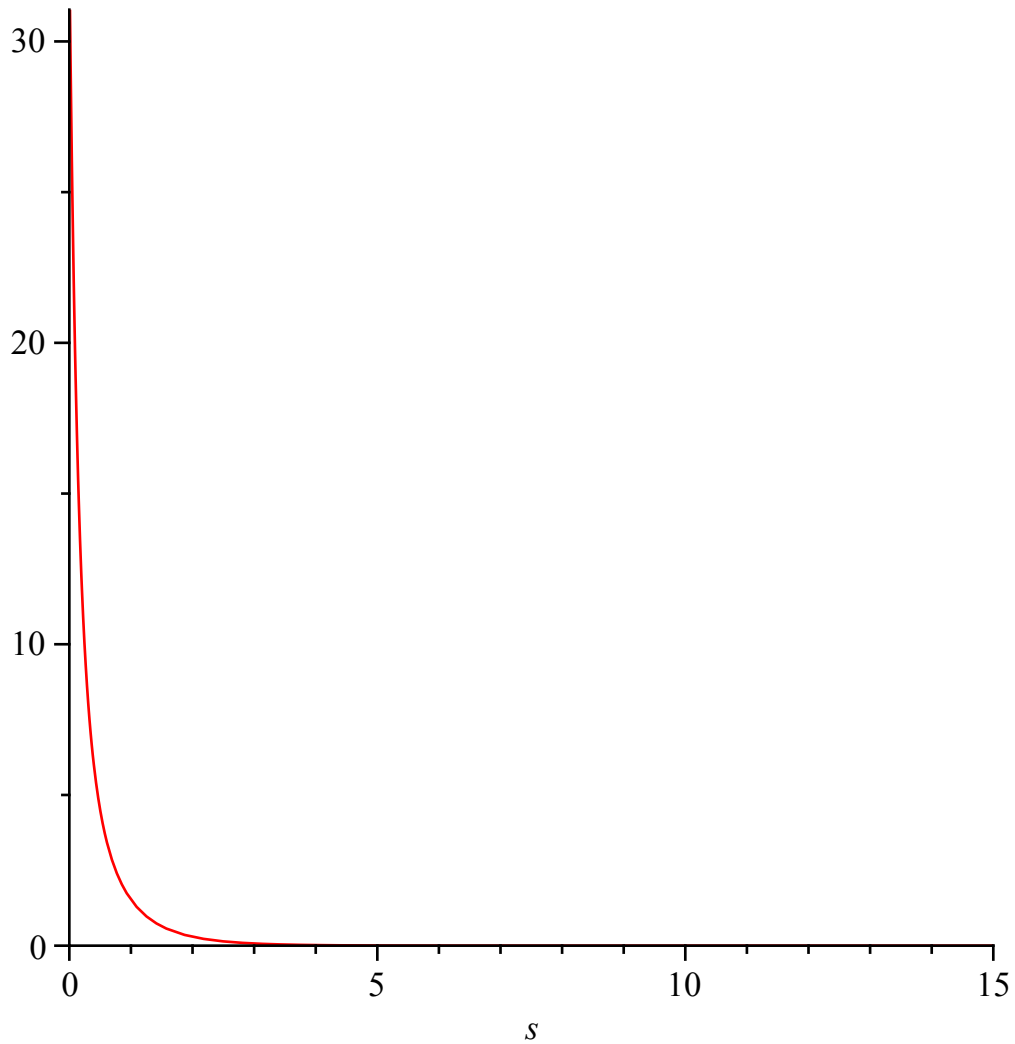
```
> with(inttrans) :
```

```
> LapTransCastle := laplace(Castle, t, s)
```

$$\text{LapTransCastle} := \frac{e^{-s} + e^{-11s} - 2e^{-10s} + e^{-9s} + e^{-7s} - 2e^{-6s} + e^{-5s} + e^{-3s} - 2e^{-2s}}{s^2} + \frac{4e^{-s} - 4e^{-11s} + 2e^{-9s} - e^{-7s} + e^{-5s} - 2e^{-3s}}{s}$$

(1)

```
> plot(LapTransCastle, s = 0 .. 15)
```



```
> restart
```

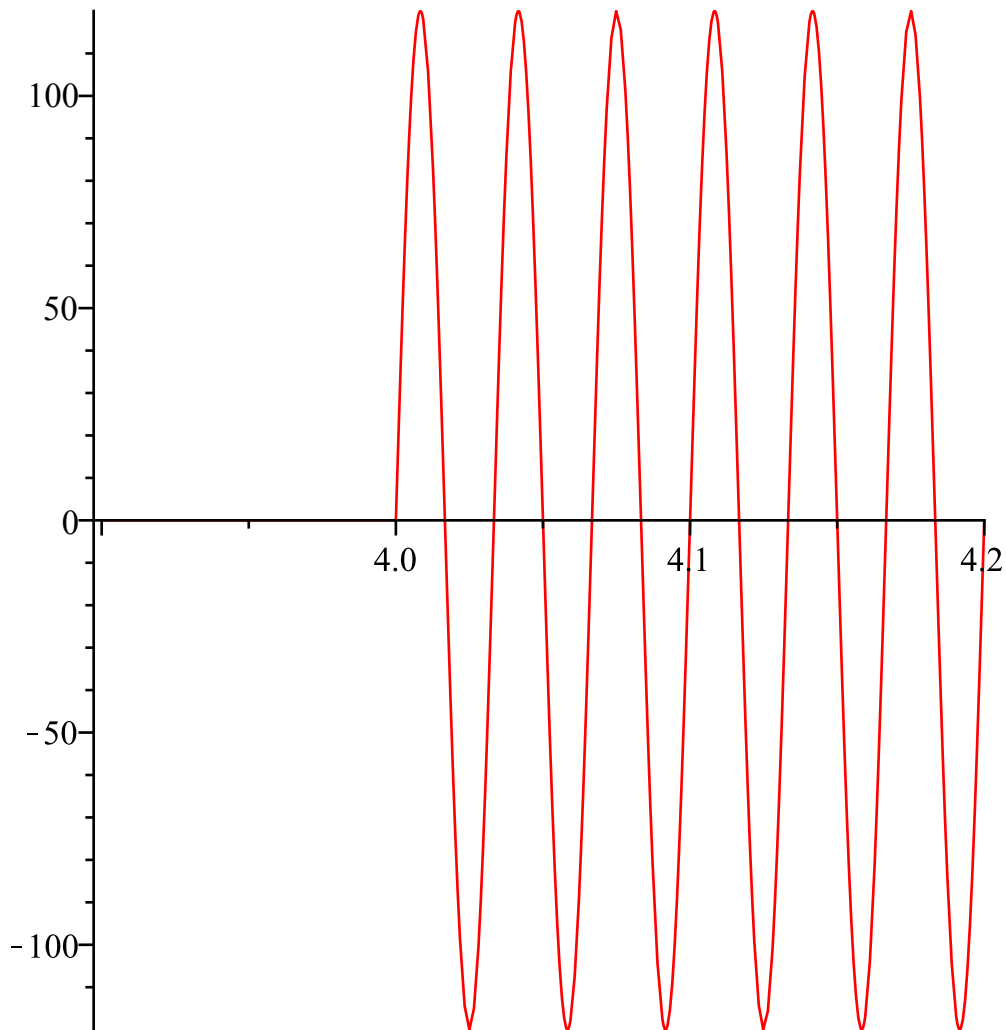
```
> Equa := L1 · diff(i(t), t) + R1 · i(t) = P
```

$$Equa := L_1 \left(\frac{d}{dt} i(t) \right) + R_1 i(t) = P \quad (2)$$

```
> P := 120 · sin(60 · Pi · t) · Heaviside(t - 4)
```

$$P := 120 \sin(60 \pi t) \text{ Heaviside}(t - 4) \quad (3)$$

```
> plot(P, t = 3.9 .. 4.2)
```



> Condition := i(0) = 0

Condition := i(0) = 0 (4)

> with(inttrans)

[addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace, invmellin, laplace, mellin, savetable] (5)

> LapTransEqua := subs(L₁ = 1, R₁ = 2, Condition, laplace(Equa, t, s))

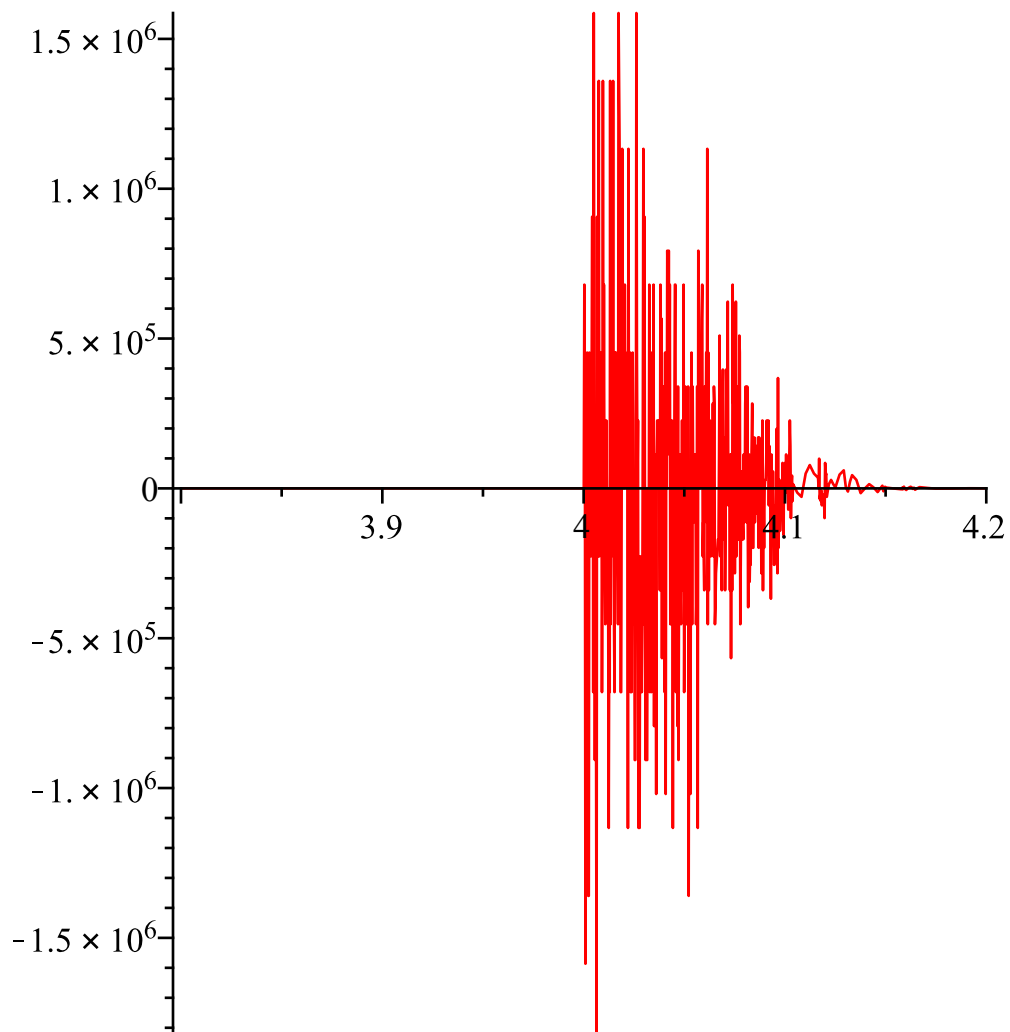
$$LapTransEqua := s \operatorname{laplace}(i(t), t, s) + 2 \operatorname{laplace}(i(t), t, s) = \frac{7200 e^{-4s} \pi}{s^2 + 3600 \pi^2} \quad (6)$$

> LapTransSol := isolate(LapTransEqua, laplace(i(t), t, s))

$$LapTransSol := \operatorname{laplace}(i(t), t, s) = \frac{7200 e^{-4s} \pi}{(s^2 + 3600 \pi^2) (s + 2)} \quad (7)$$

> ParticularSolution := invlaplace(LapTransSol, s, t) :

> plot(rhs(ParticularSolution), t = 3.8 .. 4.2)



[>
[>