> *restart*

> $F := \dfrac{s}{s \cdot \cdot 2 + 2 \cdot s + 2}$

$$F := \dfrac{s}{s^2 + 2\,s + 2} \qquad\qquad (1)$$

> *with(inttrans)*

$[addtable, fourier, fouriercos, fouriersin, hankel, hilbert, invfourier, invhilbert, invlaplace,$ $\qquad$ **(2)**
$\quad invmellin, laplace, mellin, savetable]$

> $f := expand(invlaplace(F, s, t))$

$$f := \dfrac{\cos(t)}{e^t} - \dfrac{\sin(t)}{e^t} \qquad\qquad (3)$$

> $g := \text{Heaviside}(t - 3)$

$$g := \text{Heaviside}(t - 3) \qquad\qquad (4)$$

> $plot(g, t = 0..5)$
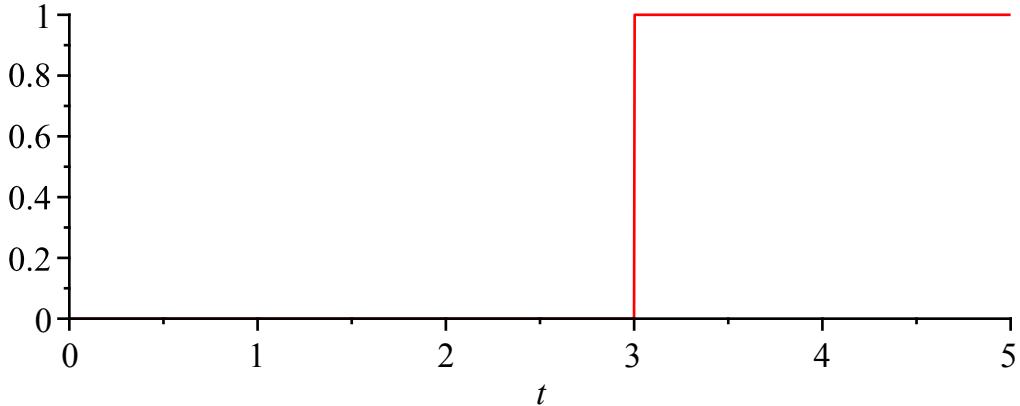
> $G := laplace(g, t, s)$

$$G := \dfrac{e^{-3s}}{s} \qquad\qquad (5)$$

> $H := \dfrac{\exp(-4s)}{(s - 9) \cdot \cdot 3}$

$$H := \dfrac{e^{-4s}}{(s - 9)^3} \qquad\qquad (6)$$

> $h := invlaplace(H, s, t)$

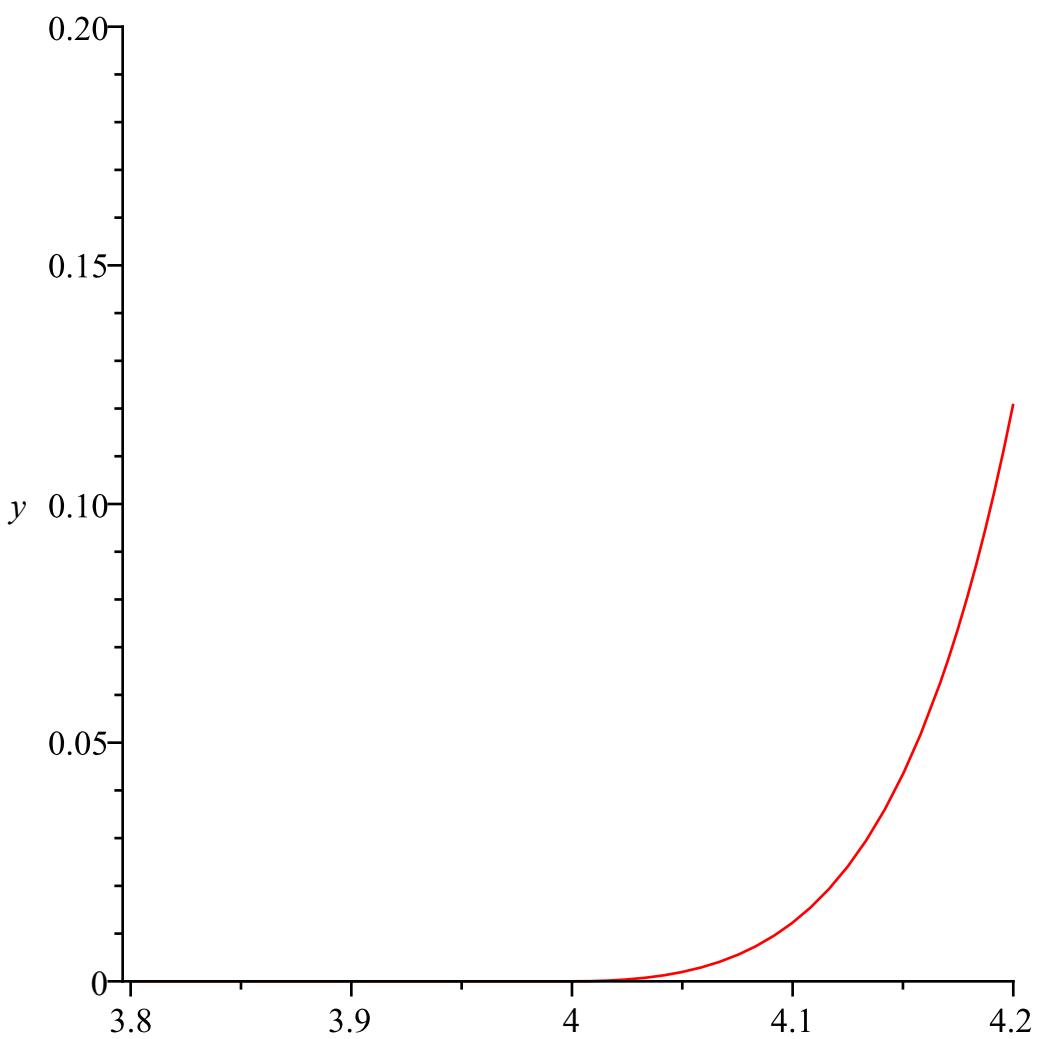$$h := \dfrac{1}{2}\,\text{Heaviside}(t - 4)\,(t - 4)^2\,e^{9t - 36} \qquad\qquad (7)$$

> $j := \dfrac{1}{2}\,(t - 4)^2\,e^{9(t - 4)} \cdot \text{Heaviside}(t - 4)$

$$j := \dfrac{1}{2}\,\text{Heaviside}(t - 4)\,(t - 4)^2\,e^{9t - 36} \qquad\qquad (8)$$

> $J := laplace(j, t, s)$

$$J := \dfrac{e^{-4s}}{(s - 9)^3} \qquad\qquad (9)$$

> $plot(j, t = 3.8..4.2, y = 0..0.2)$

(Plot: y-axis labeled y from 0 to 0.20; x-axis from 3.8 to 4.2; red curve rising from 0 near $t=4$ to about 0.12 at $t=4.2$.)

> *restart*

> $IntConv := Int(\cos(2 \cdot tau) \cdot \sin(2 \cdot (t - tau)), tau = 0 ..t) = int(\cos(2 \cdot tau) \cdot \sin(2 \cdot (t - tau)), tau = 0 ..t)$

$$IntConv := \int_{0}^{t} \cos(2\,\tau)\,\sin(2\,t - 2\,\tau)\,\mathrm{d}\tau = \frac{1}{2}\,\sin(2\,t)\,t \tag{10}$$

> $F := \dfrac{s}{(s \cdot\cdot 2 + 4) \cdot\cdot 2}$

$$F := \frac{s}{\left(s^2 + 4\right)^2} \tag{11}$$

> $with(inttrans):$

> $f := invlaplace(F, s, t)$

$$f := \frac{1}{4}\,\sin(2\,t)\,t \tag{12}$$

>