> $restart : with(inttrans) : assume(t > 0) : assume(\text{sigma} > 0) : assume(d > 0) :$

> $initial := n0 \cdot \exp\left(-\dfrac{x^2}{\sigma^2}\right) :$

> $phi0 := simplify(fourier(initial, x, k))$

$$\phi 0 := n0\ \mathrm{e}^{-\frac{k2\,\sigma\!\sim2}{4}}\ \sigma\!\sim \sqrt{\pi} \tag{1}$$

> $PHI := \exp(-d \cdot k^2 \cdot t) \cdot \exp(-d \cdot K^2 \cdot t) \cdot phi0$

$$PHI := \mathrm{e}^{-d\sim k2\,t\sim}\ \mathrm{e}^{-d\sim K2\,t\sim}\ n0\ \mathrm{e}^{-\frac{k2\,\sigma\!\sim2}{4}}\ \sigma\!\sim \sqrt{\pi} \tag{2}$$

> $simplify(invfourier(PHI, k, x))$

$$\dfrac{n0\ \sigma\!\sim \mathrm{e}^{\frac{-4\,K2\,d\sim2\,t\sim2 - K2\,d\sim\,\sigma\!\sim2\,t\sim - x2}{4\,d\sim t\sim + \sigma\!\sim2}}}{\sqrt{4\,d\!\sim t\!\sim + \sigma\!\sim^2}} \tag{3}$$

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