



5. $y(x) + \lambda \int_0^{\infty} e^{-|x-t|} y(t) dt = f(x).$

Solution for $\lambda > -\frac{1}{2}$:

$$y(x) = f(x) - \frac{\lambda}{\sqrt{1+2\lambda}} \int_0^{\infty} \exp(-\sqrt{1+2\lambda}|x-t|) f(t) dt \\ + \left(1 - \frac{\lambda+1}{\sqrt{1+2\lambda}}\right) \int_0^{\infty} \exp[-\sqrt{1+2\lambda}(x+t)] f(t) dt.$$

References

- Gakhov, F. D. and Cherskii, Yu. I.**, *Equations of Convolution Type* [in Russian], Nauka, Moscow, 1978.
Polyanin, A. D. and Manzhirov, A. V., *Handbook of Integral Equations*, CRC Press, Boca Raton, 1998.