



5.
$$\int_{-\infty}^{\infty} \frac{y(t)}{|x-t|^{1-\lambda}} dt = f(x), \quad 0 < \lambda < 1.$$

Solution:

$$y(x) = \frac{\lambda}{2\pi} \tan\left(\frac{\pi\lambda}{2}\right) \int_{-\infty}^{\infty} \frac{f(x) - f(t)}{|x-t|^{1+\lambda}} dt.$$

It is assumed that the condition $\int_{-\infty}^{\infty} |f(x)|^p dx < \infty$ is satisfied for some p , $1 < p < 1/\lambda$.

References

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