



6. 
$$\int_{-\infty}^{\infty} \frac{\text{sign}(x-t)}{|x-t|^{1-\lambda}} y(t) dt = f(x), \quad 0 < \lambda < 1.$$

Solution:

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

### References

**Samko, S. G., Kilbas, A. A., and Marichev, O. I.,** *Fractional Integrals and Derivatives. Theory and Applications*, Gordon & Breach Sci. Publ., New York, 1993.

**Polyanin, A. D. and Manzhirov, A. V.,** *Handbook of Integral Equations*, CRC Press, Boca Raton, 1998.