

13.
$$\int_a^b \left(\ln |x-t| + \beta \right) y(t) dt = f(x).$$

By setting

$$x = e^{-\beta}z$$
, $t = e^{-\beta}\tau$, $y(t) = Y(\tau)$, $f(x) = e^{-\beta}g(z)$,

we arrive at an equation of the form 3.12:

$$\int_A^B \ln|z - \tau| Y(\tau) d\tau = g(z), \qquad A = ae^{\beta}, \ B = be^{\beta}.$$

Reference

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

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