



34. $\int_a^x [g(x) - g(t) + b]y(t) dt = f(x), \quad f(a) = 0.$

For $b = 0$, see equation 1.33.

Solution:

$$y(x) = \frac{1}{b} f'_x(x) - \frac{1}{b^2} g'_x(x) \int_a^x \exp\left[\frac{g(t) - g(x)}{b}\right] f'_t(t) dt.$$

Reference

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