



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

For $h(t) = -g(t)$, see equation 1.33.

Solution:

$$y(x) = \frac{d}{dx} \left[\frac{\Phi(x)}{g(x) + h(x)} \int_a^x \frac{f'_t(t) dt}{\Phi(t)} \right], \quad \Phi(x) = \exp \left[\int_a^x \frac{h'_t(t) dt}{g(t) + h(t)} \right].$$

Reference

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