



6. $y(x) + A \int_a^x y^2(t) dt = Bx + C.$

1°. Solution for $AB > 0$:

$$y(x) = k \frac{(k + y_a) \exp[2Ak(x - a)] + y_a - k}{(k + y_a) \exp[2Ak(x - a)] - y_a + k}, \quad k = \sqrt{\frac{B}{A}}, \quad y_a = aB + C.$$

2°. Solution for $AB < 0$:

$$y(x) = k \tan \left[Ak(a - x) + \arctan \frac{y_a}{k} \right], \quad k = \sqrt{-\frac{B}{A}}, \quad y_a = aB + C.$$

3°. Solution for $B = 0$:

$$y(x) = \frac{C}{AC(x - a) + 1}.$$

Reference

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