



Systems of Ordinary Differential Equations > Linear Systems of Two Equations

3. $x'_t = f(t)x + g(t)y, \quad y'_t = g(t)x + f(t)y.$

Solution:

$$x = e^F(C_1e^G + C_2e^{-G}), \quad y = e^F(C_1e^G - C_2e^{-G}),$$

where C_1 and C_2 are arbitrary constants, and

$$F = \int f(t) dt, \quad G = \int g(t) dt.$$

Reference

Matveev, N. M., *Methods of Integration of Ordinary Differential Equations* [in Russian], Vysshaya Shkola, Moscow, 1963.