



Systems of Ordinary Differential Equations > Linear Systems of Three and More Equations

5. $x'_t = h(t)y - g(t)z$, $y'_t = f(t)z - h(t)x$, $z'_t = g(t)x - f(t)y$.

1°. First integral:

$$x^2 + y^2 + z^2 = C^2,$$

where C is an arbitrary constant.

2°. The system in question can be reduced to a Riccati equation.

Reference

Kamke, E., *Differentialgleichungen: Lösungsmethoden und Lösungen, I, Gewöhnliche Differentialgleichungen*, B. G. Teubner, Leipzig, 1977.