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Expansions of the real field by trajectories of linear vector fields

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Let $F\colon \mathbb{R}^n \to \mathbb{R}^n$ be linear and $\gamma\colon \mathbb{R} \to \mathbb{R}^n$ be differentiable such that $\gamma'(t) = F(\gamma(t))$ for all $t \in \mathbb{R}$. Then the image $\gamma(\mathbb{R})$ is interdefinable over the real field with at least one of: the real exponential function e^x; the complex exponential function e^z; or a finite set of functions $t \mapsto t^w\colon (0,\infty) \to \mathbb{C}$, where $w \in \mathbb{C}$. Moreover, which case(s) hold can be semialgebraically computed from the coefficients of F.