Integral Curves: Linear Equations

In class we found that the solution to the equation

\[ \dot{y} - y = e^{-t/2} \]

is

\[ y(t) = Ce^t - \frac{2e^{-t/2}}{3} \]  \hspace{1cm} (1)

Here are some integral curves of the solution.

Graphs of (1) for \( C = 0 \) (equilibrium solution, dark line), \( \pm 1 \), and \( \pm 2 \).
In class we found that the solution to the equation

\[ t\dot{y} - 2y = 2t^4 \]

is

\[ y(t) = t^4 + Ct^2. \quad (2) \]

Here are some integral curves of the solution.

Graphs of (2) for \( C = 0, \pm 1, \text{ and } \pm 2. \)