

1. Determine the general solution $x(t)$ of the separable ODE

$$x' = -x^4,$$

then find the unique solution satisfying $x(0) = 1$. Both should be explicit functions of t .

2. Determine the general solution $x(t)$ of the separable ODE

$$x' = t^2 e^{-x},$$

then find the unique solution satisfying $x(0) = \ln 2$. Both should be explicit functions of t .