MVE290 GOALS FOR 2020.01.23 SPECIAL K. 3

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1. Learning objectives

Our specific goals for today are:

(1) You will be able to use the Mμthod to solve first order linear ODEs, equations of the form
$$u'(t) + p(t)u(t) = g(t).$$
(2) If your equation can be put in the form
$$\Phi(u)u'(t) = g(t),$$
where u is the unknown and Φ and g are given in the equation, then you will be able to use the 'separable' method to solve implicitly for u.
(3) If your equation can be put in the form,
$$\Psi_t(u,t) + \Psi_u(u,t)u'(t) = 0,$$
for some function Ψ of two variables, then you will be able to use the 'exact' method to solve implicitly for u.
(4) You will be able to use the Wronskian to solve linear second order ODEs.
(5) If we have enough time, you will be able to use the Laplace transform to solve all constant coefficient linear ODEs (homogeneous or not) of all order.