

Thm 2.4.1:

If p and g are continuous on an open interval $I = \{t \mid a < t < b\}$ containing the point t_0 , then there exists a unique function $y = \phi(t)$ that satisfies the following initial value problem:

$$y' + p(t)y = g(t), \quad t \in I$$

,

$$y(t_0) = y_0.$$

2.4 #27b. Solve Bernoulli's equation,

$$y' + p(t)y = g(t)y^n,$$

when $n > 1$ by changing it to a linear equation by substituting $v = y^{1-n}$

Solve

$$ty' + 2t^{-2}y = 2t^{-2}y^5,$$