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% Analytic ODE Solution Example (chap2_ODE_analytic_soln.m)
%
% Find analytic solution to the first-order ordinary
% differential equation (ODE)
%           di/dt + 10i = 5u(t) w/ i(0) = 2A
% by using the MATLAB dsolve() command.
%
clear;clc;close all;
% Input the differential eqn, initial condition,
% and the independent variable
i = dsolve('Dy = -10*y + 5','y(0) = 2','t')
```

MATLAB Command Window output

i =

$(3 \cdot \exp(-10 \cdot t)) / 2 + 1/2$

- **Note that this solution is identical to that already found using circuits techniques!**