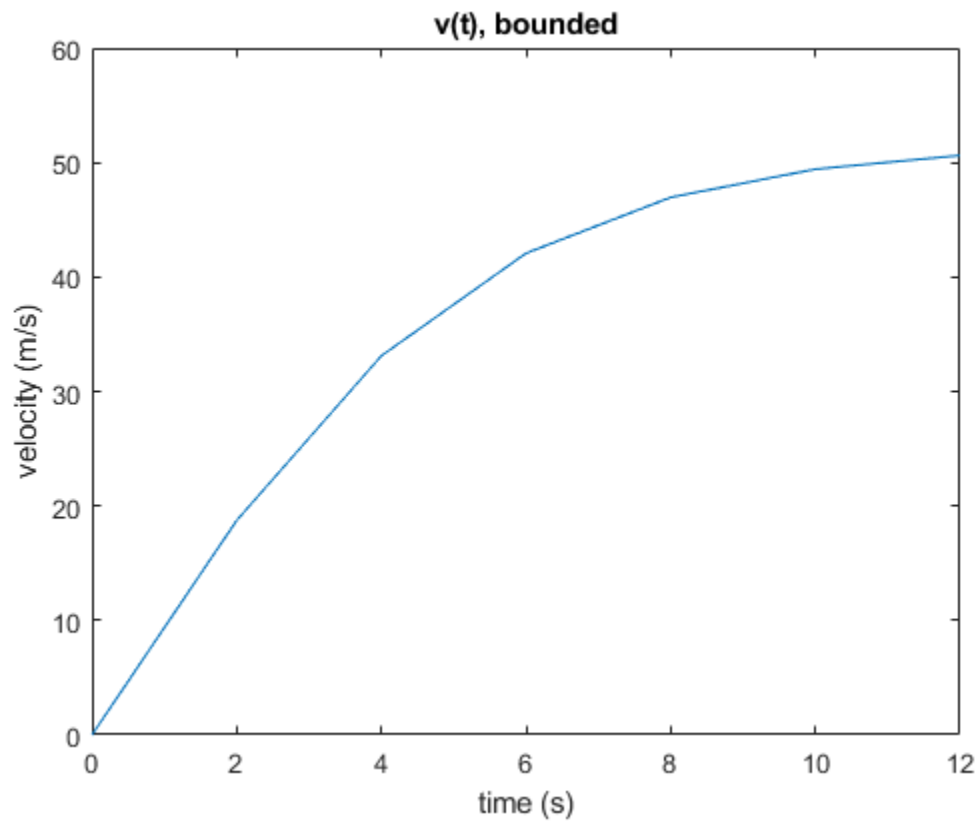# Analytical Solution to the Bungee Jumper Problem

```matlab
% clear;

a_y_init = 9.81; % m/s^2
mass = 68.1; % kg
c_d = .25; % kg/m;
t_init = 0; % s
t_final = 12; % s
t_vector = [ t_init : 2 : t_final ];
% t_vector = [ t_init : 2 : Inf ]; % wouldn't this be nice!!!

v_time = sqrt( a_y_init * mass / c_d ) * tanh( sqrt( (a_y_init *
 c_d) / mass ) .* t_vector );

plot( t_vector, v_time )
title('v(t), bounded');
xlabel('time (s)');
ylabel('velocity (m/s)');
```


Published with MATLAB® R2018a