This script demonstrates the use of Matlab's symbolic language to solve a differential equation

```
% Claude Lieber, MS, MD, FACS: 10/15/2021
clear
clc
close all

syms P(t)

Pop=P*(1-P/10000);
condition=P(0)==30;
Solution=dsolve(diff(P,t)==Pop,condition);
S=simplify(Solution);
fprintf('The solution to the diff.eq. is:\n');disp(S)
```

The solution to the diff.eq. is:

$$\frac{10000\,e^t}{e^t+\frac{997}{3}}$$

```
assume(t>=0);
figure('color','w')
fplot(S)
grid on; axis([0,20, 0 10100])
```