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```matlab
% Liam Fruzyna
% MATH 4630
% HW 1 #8
% 400 total, 5 then 30 sick
clear all; close all
format compact
```
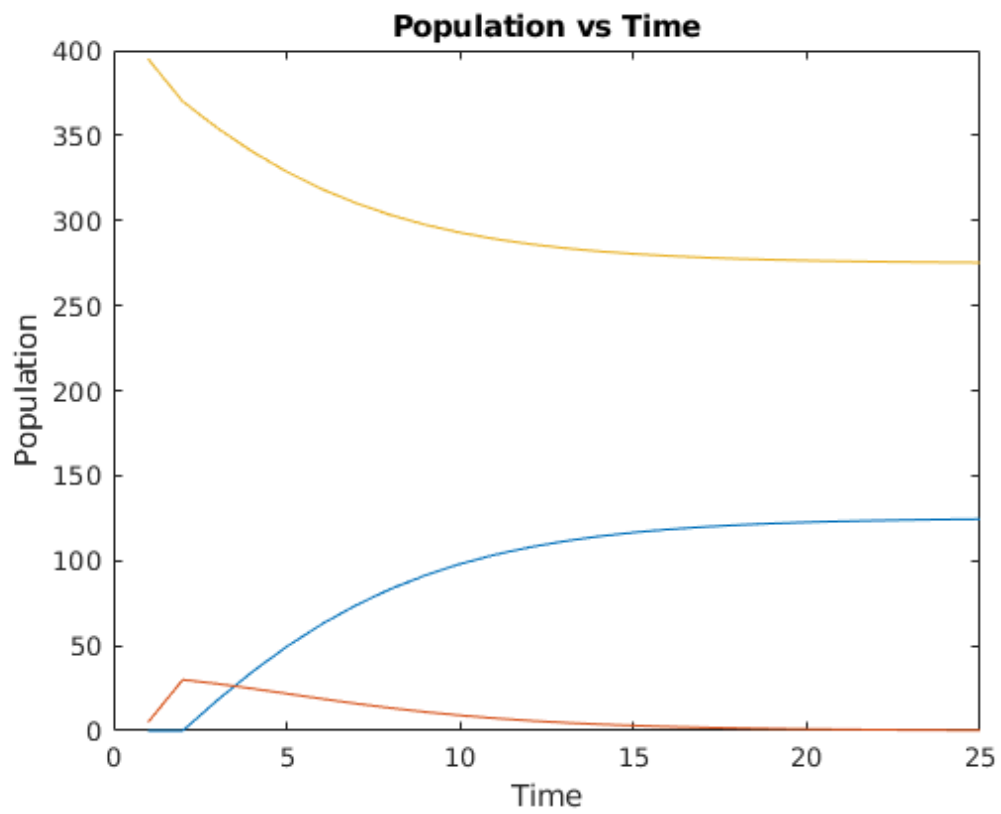
Input

```matlab
N = 25;           % number of weeks
rr = 0.6;         % removal rate
a = 0.001407;     % disease rate
r(1) = 0;         % initial removed people
i(1) = 5;         % initial infected people
s(1) = 395;       % initial susceptible people
r(2) = 0;         % second removed people
i(2) = 30;        % second infected people
s(2) = 370;       % second susceptible people
```

Calculation

```matlab
for n = 2:(N-1)
    r(n+1) = r(n) + rr * i(n);
    i(n+1) = i(n) - rr * i(n) + a * i(n) * s(n);
    s(n+1) = s(n) - a * s(n) * i(n);
end
week = 1:N;
```

Output

```matlab
week = 1:N;
plot(week, r)
xlabel('Time')
ylabel('Population')
title('Population vs Time')
hold on
plot(week, i)
plot(week, s)
```

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