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function dxdt=harvest2(t,x)
dxdt=zeros(1,1);
r=1;
k=10;
dxdt(1)=r*x(1)*(1-x(1)/k);
end
%Population Growth without Harvesting
%Analytical Solution
syms r x(t) k
f=diff(x,t,1)==r*x*(1-x/k)
f2=x(0)==2
dsolve(f,f2)
%Numerical Solution
[t x]=ode45(@harvest2,[0 10],2);
plot(t,x); xlabel('Time'); ylabel('Population'); title('Population Growth without Harvesting')
f(t) = diff(x(t), t) == -r*x(t)*(x(t)/k - 1)
f2 = x(0) == 2
ans = -k/(exp(k*(log(1 - k/2)/k - (r*t)/k)) - 1)

```