```
function dxdt=pill2(t,x)
dxdt=zeros(2,1);
k1=1.3860;
k2=0.1386;
I=100;
dxdt(1)=I-k1*x(1);
dxdt(2)=I-k1*x(1)-k2*x(2);
end


%Course of Cold Pill
%Analytical Solution
syms x(t) y(t) k1 k2 I
f=diff(x,t,1)==I-k1*x
g=x(0)==2
dsolve(f,g)
h=diff(y,t,1)==I-k1*x-k2*y
l=y(0)==0
dsolve(h,l)
%Numerical Solution
[t x]=ode45(@pill2,[0 4],[2
0]);plot(t,x);xlabel('Time');ylabel('Pill');title('Course of Cold Pill')


f(t) = diff(x(t), t) == I - k1*x(t)


g = x(0) == 2


ans = (I - exp(-k1*t)*(I - 2*k1))/k1


h(t) = diff(y(t), t) == I - k1*x(t) - k2*y(t)


l = y(0) == 0


ans = exp(-k2*t)*int(exp(k2*x)*(I - k1*x(x)), x, 0, t, 'IgnoreSpecialCases', true,
'IgnoreAnalyticConstraints', true)
```