```
>> syms x y t u
>> y=formalseries(x,5)

y =

a5*x^5 + a4*x^4 + a3*x^3 + a2*x^2 + a1*x + a0

>> dy=diff(y,x);
>> d2y=diff(dy,x);
>> ode=collect(d2y-x*dy-y,x)

ode =

- 6*a5*x^5 - 5*a4*x^4 + (20*a5 - 4*a3)*x^3 + (12*a4 - 3*a2)*x^2 + (6*a3 - 2*a1)*x - a0 + 2*a2

>> soln=sersol(ode,x,5,[2,1])

soln =

x^5/15 + x^4/4 + x^3/3 + x^2 + x + 2

>> y=formalseries(x,8)

y =

a8*x^8 + a7*x^7 + a6*x^6 + a5*x^5 + a4*x^4 + a3*x^3 + a2*x^2 + a1*x + a0

>> dy=diff(y,x); d2y=diff(dy,x); ode=collect(d2y-x*dy-y,x)

ode =

- 9*a8*x^8 - 8*a7*x^7 + (56*a8 - 7*a6)*x^6 + (42*a7 - 6*a5)*x^5 + (30*a6 - 5*a4)*x^4 + (20*a5 -
4*a3)*x^3 + (12*a4 - 3*a2)*x^2 + (6*a3 - 2*a1)*x - a0 + 2*a2

>> soln2=sersol(ode,x,8,[2,1])

soln2 =

x^8/192 + x^7/105 + x^6/24 + x^5/15 + x^4/4 + x^3/3 + x^2 + x + 2

>> hold on
>> ezplot(soln2,[-1,2])
>> hold off
>>
```