Solution (#1632) We solved the homogeneous DE in #1629. It remains to find a particular solution of

$$x^2 y'' - xy' + y = x^2 + 1.$$

Trying $y(x) = ax^2 + b$ we find $y = x^2 + 1$. Hence the general solution is

$$y = x(A \ln x + B) + x^2 + 1.$$