Solving nonhomogeneous linear DEs via variation of parameters **

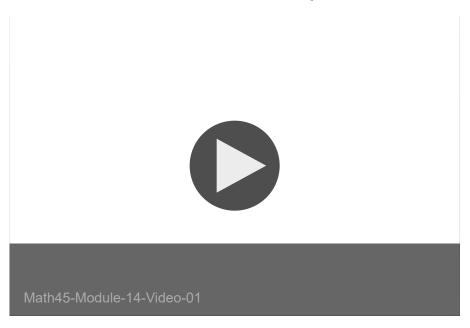
Given the two solutions y_1 and y_2 of the underlying homogeneous linear differential equation, we consider the formulas

$$u_1'=-rac{y_2f(x)}{W},~~u_2'=rac{y_1f(x)}{W},$$

where W is the Wronskian $W(y_1,y_2)$. Once we obtain these, we then integrate to find u_1 and u_2 . The needed particular solution is then given by

$$y_p = u_1 y_1 + u_2 y_2.$$

Discussion, comments, and examples:



WeBWorK module 14 exercises:

Problems 1, 2, 3

Relevant Wikipedia articles:

• <u>Variation of parameters</u> 2 (https://en.wikipedia.org/wiki/Variation of parameters#General second-order equation)