Variation of Parameters

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- The general solution of a first order linear DE is of form (1)

$$y = c_1 e^{-\int P(x)\,dx} + e^{-\int P(x)\,dx} \int e^{\int P(x)\,dx} f(x)\,dx \tag{1}$$

- A way to attain a solution is **Variation of Parameters**.
- For a second order DE, use $y_p(x) = u_1(x)y_1(x) + u_2(x)y_2(x)$