5.5 Exercises

Problem 1 The roots of the equation $r^2 - 6r + 13 = 0$ are $r = 3 \pm 2i$.
Using the undetermined coefficients method, write down the **general form of a particular solution** for:
$y'' - 6y' + 13y = xe^{3x} \sin 2x$ (this means you don't solve for the coefficients).

Problem 2 Use the method of **variation of parameters** to find a particular solution to: $y'' - 4y = xe^x$.

Problem 3 Find a particular solution y_p of $y^{(4)} - 5y'' + 4y = e^x - xe^{2x}$.