Forms to find particular solutions of
$py''(x)+qy'(x)+ry(x)=g(x)$, for $p\neq 0$, q, r constant,
using the method of undetermined coefficients

$g(x)$	$y_p(x)$
$a_nx^n+\cdots+a_1x+a_0$	$x^s(A_nx^n+\cdots+A_1x+A_0)$
$ae^{\alpha x}$	$x^sAe^{\alpha x}$
$a\cos(\beta x)+b\sin(\beta x)$	$x^s(A\cos(\beta x)+A\sin(\beta x))$
$(a_nx^n+\cdots+a_1x+a_0)e^{\alpha x}$	$x^s(A_nx^n+\cdots+A_1x+A_0)e^{\alpha x}$
$(a_nx^n+\cdots+a_1x+a_0)\cos(\beta x)$ $+(b_mx^m+\cdots+b_1x+b_0)\sin(\beta x)$	$x^s\left\{(A_jx^j+\cdots+A_1x+A_0)\cos(\beta x)\right.$ $\left.+(B_jx^j+\cdots+B_1x+B_0)\sin(\beta x)\right\}$ where p=max(n,m).
$ae^{\alpha x}\cos(\beta x)+be^{\alpha x}\sin(\beta x)$	$x^s\{Ae^{\alpha x}\cos(\beta x)+Be^{\alpha x}\sin(\beta x)\}$
$(a_nx^n+\cdots+a_1x+a_0)e^{\alpha x}\cos(\beta x)$ $+(b_mx^m+\cdots+b_1x+b_0)e^{\alpha x}\sin(\beta x)$	$x^s\left\{(A_jx^j+\cdots+A_1x+A_0)e^{\alpha x}\cos(\beta x)\right.$ $\left.+(B_jx^j+\cdots+B_1x+B_0)e^{\alpha x}\sin(\beta x)\right\}$ where j=max(n,m).

- Plug the form of y_p into the given differential equation to solve for A, B, A_j, B_j, etc.
- The non-negative integer s is chosen to be the smallest integer so that no term in the particular solution $y_p(x)$ is a solution to the corresponding homogeneous equation $ay''(x)+by'(x)+cy(x)=0$.
- The polynomials $A_nx^n+\cdots+A_1x+A_0$, etc must include ALL powers of x up to n even if some coefficients in $(a_nx^n+\cdots+a_1x+a_0)$ are zero.