

**M351 AHw§3.4** (S. Zhang) .

1. (3.4:a1) Find the general solution of the homogeneous equation  $y_H$  and write down the form for undetermined coefficients for  $y_p$ . (Do not solve the coefficients for  $y_p$ .)

$$(D^2 - 1)(D - 1)(D^2 + 4)^2 y = e^{-x} + 2e^x \sin 2x - 3x + x \cos 2x.$$

2. (3.4:a1) Find the general solution of the homogeneous equation  $y_c$  and write down the form for undetermined coefficients for  $y_p$ . (Do not solve for  $y_p$ .)

$$(D^2 - 9)(D + 3)(D^2 + 4)y = e^x \sin x - e^{-3x} + \cos 2x.$$