

Find the general solution for each nonhomogeneous equation following these steps:

- (a) Find the solution to the associated homogeneous equation.
- (b) Use the method of undetermined coefficients to find a particular solution.
- (c) Write the general solution as the sum of your answers from parts (a) and (b).

1. $y'' + y' - 2y = 2x$

2. $y'' - 2y' - 3y = 3e^{2t}$

3. $y'' + 2y' + 5y = 3\sin 2t$