Find the general solution to the following 2nd order differential equations.

1. \( y'' + 2y' - 3y = 0 \)

2. \( y'' + 2y' - 3y = e^{3t} \)

3. \( y'' + 2y' - 3y = 6t^2 + t - 2 \)
4. $y'' + 2y' - 3y = 5 \sin 3t$