First Order ODE Practice Questions

Solve the following differential equations. In the following problems, the independent variable x is negated and $y' = y'(x)$.

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

2. $y'' + 2y' = 2 + 4\sin(2x)$

3. $y'' + \omega_0^2 y = \cos(\omega x)$

4. $y'' + y = \sec(x)$

5. $y'' - 2y' + y = \dfrac{e^x}{1+x^2}$

6. $y'' - 5y' + 6y = g(x)$

7. $y'' + 2y' + y = e^x \cos(x)$

8. $y'' - y' - 2y = \cosh(2x)$

9. $y'' - 6y' + 9y = e^{3x}$

10. $y^{(3)} + y' = \tan(x)$

11. $y^{(4)} - y'' = x^2 + e^x$

12. $y^{(4)} + 2y^{(3)} = \sin(2x)$

13. $y^{(4)} + y = 0$

14. $y^{(3)} - 3y'' + 3y' - y = g(x)$