Вариант 6.

1. $y' + \frac{y^2-1}{x^2-1} = 0$
2. $(y + \sqrt{xy})dx = xdy$
3. $y' - 2xy = 2xe^{x^2}, y(0) = 2$
4. $y' \cos x + y^2 = y \sin x$
5. $\left(2x^3 + y^2x\right) dx + \left(2y^3 + yx^2\right) dy = 0$
6. $xy'' = y' \ln \frac{y^5}{x}$
7. $2\left(y'\right)^2 = (y-1)y'', y(0) = 2, y'(0) = 1$
8. $y'' - y = 0, y(0) = 1, y'(0) = 0$
9. $y''' - 8y'' + 16y' = 0$
10. $y'' + 5y' + 4y = e^{-4x} + 2x$
11. $y'' - 2y' = \sin 2x$
12. $y'' + 9y = \cos 3x$
13. $y'' + 2y' - 3y = 2xe^{3x} + 3\cos x$
14. $y'' + 3y' + 2y = \frac{2}{e^x+1}$
15. $y^{(IV)} + 9y'' = 4e^{-3x}$