Вариант 10.

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