Вариант 9.

1. $\left(xy^2 + x\right) dx + \left(y - x^2 y\right) dy = 0$
2. $xy' = y \ln \frac{y}{x}$
3. $y' + 2xy = xe^{-x^2}, y(0) = \frac{1}{2}$
4. $y' + \frac{y}{x} - 2x^2 y^2 = 0$
5. $\left(1 + x\sqrt{x^2 + y^2}\right) dx + \left(\sqrt{x^2 + y^2} - 1\right) ydy = 0$
6. $xy'' = y$
7. $1 + (y')^2 = 2yy'', y(1) = y'(1) = 1$
8. $y'' - 2y' - 2y = 0, y(0) = 0, y'(0) = 1$
9. $y''' - 25y' = 0$
10. $y'' - 7y' + 12y = e^{4x} - x$
11. $y'' - y' = \sin x$
12. $y'' + 4y = \cos 2x$
13. $y'' - 2y' + y = x^2 e^x + e^{2x} \cos 2x$
14. $y'' + 4y = \frac{4}{\cos 2x}$
15. $y''' - y' = e^x$