

1. $2x(1 + \sqrt{x^2 - y}) dx - \sqrt{x^2 - y} dy = 0.$

2. $y' - \frac{y}{x} = 3x^3.$

3. $xyy' = 4x^2 + y^2.$

4. $xy' + y = -xy^2.$

5. $xy' + y = \ln x + 1, \quad y(2) = 1.$

6. $x^2y' + 3xy = \frac{1}{x}, \quad y(1) = -1.$