$$\text{hom DGL} \begin{cases} x^2y' = y^2 + 2xy & \text{allg Loesung} \\ 2xyy' - y^2 + x^2 = 0 & y(5) = 2 \text{ AWP} \end{cases}$$

$$\text{exact DGL} \begin{cases} (\ln x - 2)\, y' + \left(\dfrac{y}{x} + 6x\right) = 0 & y(e) = 1 \text{ AWP} \\ ye^{xy} + (1 + xe^{xy})\, y' = 0 & \text{allg Loesung} \end{cases}$$

$$\text{integrable Faktor} \begin{cases} 3xy + y^2 + (x^2 + xy)\, y' = 0 & \text{allg Loesung} \\ 2y + xy + 2xy' = 0 & y(3) = \sqrt{2} \text{ AWP} \end{cases}$$

$$x^2 \underline{y} - 2xy = \frac{1}{x} / y \left(\frac{1}{2}\right) = 8: \quad y = 36\, x^2 - \frac{1}{4x^2}$$

$$x^2 \underline{y} = x^2 - xy + y^2 / y\,(1) = \frac{3}{2}: \quad y = x - \frac{x}{\ln x - 2}$$

$$y + \left(y^2 - x\right) \underline{y} = 0: \quad y + \frac{x}{y} = c \text{ implizit}$$