$$\frac{dy}{dx} = (x+y)^2 \Longrightarrow y = {}^{x+C}\tan - x$$

$$z = x + y \Longrightarrow \frac{dz}{dx} = 1 + \frac{dy}{dx} = 1 + z^2 \Longrightarrow \overset{-1}{\tan} z = \int \frac{dz}{1+z^2} = \int dx = x + C \Longrightarrow z = {}^{x+C}\tan$$

$$\left(1+x^2\right)\frac{dy}{dx} + xy = x\,y^2\colon \quad {}^0y = 1$$

$$z = 1/y \Longrightarrow \text{ lin}$$

$$\frac{dy}{dx} = \frac{y}{x} + \frac{\sin 1/x}{x}\colon \quad x > 0 \text{ allg Lsg}$$

$$3\frac{dy}{dx} + y = (1-2x)\,y^4\colon \quad y\,(0) = \frac{1}{2}$$