$(x^2-9)y'+xy=0$ [104 中原機械甲 1]

[解]原式 $\Rightarrow y'+\frac{x}{x^2-9}y=0$

$$F=e^{\int\frac{x}{x^2-9}dx}=e^{\frac{1}{2}\int\frac{1}{x^2-9}d(x^2-9)}=e^{\frac{1}{2}\ln(x^2-9)}=\sqrt{x^2-9}$$

$$y=\frac{1}{F}(\int F\cdot 0dx+C)=\frac{C}{\sqrt{x^2-9}}$$