$$x^2\frac{d^2y}{dx^2}+x\frac{dy}{dx}-y=0$$

令 $y=x^m$ (背)

$$\frac{dy}{dx}=mx^{m-1}$$

$$\frac{d^2y}{dx^2}=m(m-1)x^{m-2}$$

代入原式

$$\Rightarrow x^2\cdot m(m-1)x^{m-2}+x\cdot mx^{m-1}-x^m=0$$

$$\Rightarrow m(m-1)x^m+mx^m-x^m=0$$

$$\Rightarrow (m^2-m+m-1)x^m=0$$

令 $x^m\neq 0$

$$\Rightarrow m^2-1=0$$

$$\Rightarrow m=1,-1$$

$$\Rightarrow y=C_1x^1+C_2x^{-1}$$ #

先忽略

$$\mathcal{L}^{-1}\left\{\frac{se^{-2s}}{(s+2)^2(s^2+4s+8)}\right\}$$

$$\mathcal{L}^{-1}\left\{\frac{s}{(s+2)^2(s^2+4s+8)}\right\}$$

$$=\mathcal{L}^{-1}\left\{\frac{s}{(s+2)^2[(s+2)^2+2^2]}\right\}$$

$$=\mathcal{L}^{-1}\left\{\frac{}{(s+2)^2}\right\}+\mathcal{L}^{-1}\left\{\frac{}{(s+2)^2+2^2}\right\}$$