$$(\underbrace{1.2}_{x_0}, \underbrace{-1.5}_{f_0}), \quad (\underbrace{1.4}_{x_1}, \underbrace{0}_{f_1}), \quad (\underbrace{1.6}_{x_2}, \underbrace{0.5}_{f_2})$$

$$y'' + 2y = 0 \xRightarrow[\text{lawat.}]{tg^0} \lambda^2 + 2 = 0 = \lambda^2 - (i\sqrt{2})^2 = 0$$

$$\lambda_1 = i\sqrt{2}, \quad \lambda_2 = -i\sqrt{2}$$

$$\alpha = 0, \quad \beta = \sqrt{2}.$$

$$y_h = C_1 \cos(\sqrt{2}x) + C_2 \sin(\sqrt{2}x)$$

$$y'' + 4y = 0 \Longrightarrow \lambda^2 + 4 = 0$$

$$(\lambda - 2i)(\lambda + 2i) = 0 \quad . \quad \alpha = 0, \underline{\underline{\beta = 2}}.$$

$$y_h = C_1 \cos(2x) + C_2 \sin(2x).$$

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1. $M_y - N_x = f(x)\,N \iff \frac{\mu'}{\mu} = f(x) = \frac{M_y - N_x}{N}$

$$\Rightarrow \boxed{\mu = e^{\int f(x)\,dx} = \mu(x)}$$

2. $M_y - N_x = g(y)\,M \iff \frac{\mu'}{\mu} = -g(y) = -\left(\frac{M_y - N_x}{M}\right)$

$$\Rightarrow \boxed{\mu = e^{-\int g(y)\,dy}}$$

$M^* dx + N^* dy = 0$ où $M^* = \mu M$ et $N^* = \mu N$.

$M^*_y = N^*_x$??

Pour F, intègre M^* ou N^*.

$$\boxed{y = x\arcsin(\ln|x| + C)}$$

$$xy' = y + x\sec(y/x)$$

$$\Big(\underbrace{y + x\sec(y/x)}_{M}\Big)\,dx\ \underbrace{-\,x}_{N}\,dy = 0$$

$$M(\lambda x, \lambda y) = \lambda y + \lambda x\sec(\cancel{\lambda} y/\cancel{\lambda} x) = \lambda M.$$

$x = uy$ or $y = ux \Rightarrow dy = u\,dx + x\,du$

$$\big(ux + x\sec(ux/x)\big)\,dx - x\,(u\,dx + x\,du) = 0$$

$$x\sec u\,dx - x^2\,du = 0 \Leftrightarrow x\sec u\,dx = x^2\,du$$

$$\Leftrightarrow \cos u\,du = \frac{1}{x}\,dx \Rightarrow \sin u = \ln|x| + C \Rightarrow \underset{= y/x}{u} = \arcsin(\ln|x| + C)$$