35. $y''_{xx} + a\tan x\, y'_x + by = 0.$

1°. The substitution $\xi = \sin x$ leads to a linear equation of the form 2.21:

$$(\xi^2 - 1)y''_{\xi\xi} + (1 - a)\xi y'_\xi - by = 0.$$

2°. Solution for $a = -2$:

$$y\cos x = \begin{cases} C_1\sin(kx) + C_2\cos(kx) & \text{if } b + 1 = k^2 > 0, \\ C_1\sinh(kx) + C_2\cosh(kx) & \text{if } b + 1 = -k^2 < 0. \end{cases}$$

3°. Solution for $a = 2$ and $b = 3$:

$$y = C_1\cos^3 x + C_2\sin x(1 + 2\cos^2 x).$$

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