



32. $y''_{xx} + ay'_x + (be^{\lambda x} + c)y = 0.$

Solution:

$$y = e^{-ax/2} [C_1 J_\nu(2\lambda^{-1}\sqrt{b} e^{\lambda x/2}) + C_2 Y_\nu(2\lambda^{-1}\sqrt{b} e^{\lambda x/2})], \quad \nu = \lambda^{-1}\sqrt{a^2 - 4c},$$

where C_1 and C_2 are arbitrary constants, $J_\nu(z)$ and $Y_\nu(z)$ are the Bessel functions.

References

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