20. $y''_{xx} = a y'_x + e^{2ax} f(y).$

Solution:

$$\int \left[C_1 + 2 \int f(y)\,dy \right]^{-1/2} dy = C_2 \pm \frac{1}{a} e^{ax},$$

where C_1 and C_2 are arbitrary constants.

Reference

Polyanin, A. D. and Zaitsev, V. F., *Handbook of Exact Solutions for Ordinary Differential Equations, 2nd Edition*, Chapman & Hall/CRC, Boca Raton, 2003.

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