

41. 
$$y'_x = \frac{1}{x} f(x^n e^{\alpha y})$$
.

The substitution  $z=x^ne^{\alpha y}$  leads to a separable equation:  $xz_x'=nz+\alpha zf(z)$ .

## 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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http://eqworld.ipmnet.ru/en/solutions/ode/ode0141.pdf