42. $y(\sin x) - y(\cos x) = 0.$

Solution in implicit form:

$$y(\sin x) = \Phi(\sin x,\ \cos x),$$

where $\Phi(x, z) = \Phi(z, x)$ is any symmetric function of two arguments.

Reference

Polyanin, A. D. and Manzhirov, A. V., *Handbook of Integral Equations: Exact Solutions (Supplement. Some Functional Equations)* [in Russian], Faktorial, Moscow, 1998.

http://eqworld.ipmnet.ru/en/solutions/fe/fe1142.pdf