6. $\left[e^{\alpha x} f(y) + c\beta\right] \dfrac{\partial w}{\partial x} - \left[e^{\beta y} g(x) + c\alpha\right] \dfrac{\partial w}{\partial y} = 0.$

1°. Principal integral: $\Xi = \int e^{-\beta y} f(y)\, dy + \int e^{-\alpha x} g(x)\, dx - c e^{-\alpha x - \beta y}.$

2°. General solution: $w = \Phi(\Xi)$, where $\Phi(\Xi)$ is an arbitrary function.

Reference

Polyanin, A. D., Zaitsev, V. F., and Moussiaux, A., *Handbook of First Order Partial Differential Equations*, Taylor & Francis, London, 2002.