



First-Order Partial Differential Equations > Quasilinear Equations > Section 2.1

$$6. \quad ax \frac{\partial w}{\partial x} + by \frac{\partial w}{\partial y} = f(w).$$

General solution:

$$\int \frac{dw}{f(w)} = \frac{1}{a} \ln |x| + \Phi(|x|^b |y|^{-a}),$$

where $\Phi(u)$ 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.