



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

$$12. \quad f(x) \frac{\partial w}{\partial x} + g(y) \frac{\partial w}{\partial y} = h(w).$$

General solution:

$$\int \frac{dw}{h(w)} = \int \frac{dx}{f(x)} + \Phi(u), \quad u = \int \frac{dx}{f(x)} - \int \frac{dy}{g(y)},$$

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.