



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

4. $a \frac{\partial w}{\partial x} + b \frac{\partial w}{\partial y} = f(x)g(w).$

General solution:

$$\int \frac{dw}{g(w)} = \frac{1}{a} \int f(x) dx + \Phi(bx - ay),$$

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.