



First-Order Partial Differential Equations > Quasilinear Equations > Section 2.3

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

General solution:

$$y = \int \frac{f(w)}{g(w)} dw + \Phi \left( x - \int \frac{dw}{g(w)} \right),$$

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.