



First-Order Partial Differential Equations > Quasilinear Equations > Section 2.2

4. 
$$\frac{\partial w}{\partial x} + [f(w) + ax] \frac{\partial w}{\partial y} = 0.$$

General solution:

$$y = xf(w) + \frac{1}{2}ax^2 + \Phi(w),$$

where  $\Phi(w)$  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.