



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

$$9. \quad \frac{\partial w}{\partial x} + [xf(w) + yg(w) + h(w)] \frac{\partial w}{\partial y} = 0.$$

General solution:

$$y + \frac{xf(w) + h(w)}{g(w)} + \frac{f(w)}{g^2(w)} = \exp[g(w)x] \Phi(w),$$

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.