



First-Order Partial Differential Equations > Nonlinear Equations > Section 3.3

$$18. \quad F\left(x, \frac{\partial w}{\partial x}, \frac{\partial w}{\partial y}\right) = 0.$$

Complete integral:

$$w = C_1 y + \varphi(x, C_1) + C_2,$$

where  $C_1$  and  $C_2$  are arbitrary constants, and the function  $\varphi = \varphi(x, C_1)$  is determined from the ordinary differential equation  $F(x, \varphi'_x, C_1) = 0$ .

### Reference

**Polyanin, A. D., Zaitsev, V. F., and Moussiaux, A.,** *Handbook of First Order Partial Differential Equations*, Taylor & Francis, London, 2002.