

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

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

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.

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http://eqworld.ipmnet.ru/en/solutions/fpde/fpde3318.pdf