

First-Order Partial Differential Equations > Nonlinear Equations > Section 3.2

9. 
$$\left(\frac{\partial w}{\partial x}\right)^2 + f(x)\left(\frac{\partial w}{\partial y}\right)^2 = g(x)$$
.

Complete integral:

$$w = C_1 y + C_2 + \int \sqrt{g(x) - C_1^2 f(x)} dx,$$

where  $C_1$  and  $C_2$  are arbitrary constants.

## Reference

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

Copyright © 2004 Andrei D. Polyanin

http://eqworld.ipmnet.ru/en/solutions/fpde/fpde3209.pdf