11. $\dfrac{\partial w}{\partial x} + f(x, w)\dfrac{\partial w}{\partial y} = g(w).$

General solution:

$$y = \int_{w_0}^{w} \frac{f\big(G(t) - G(w) + x,\ t\big)}{g(t)}\,dt + \Phi\big(x - G(w)\big),$$

where $G(w) = \displaystyle\int \frac{dw}{g(w)}$ and $\Phi(u)$ 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.

