7. $ax\dfrac{\partial w}{\partial x} + by\dfrac{\partial w}{\partial y} = f(x,y)w.$

General solution:

$$w = \exp\left[\frac{1}{a}\int \frac{1}{x} f\left(x,\ u^{1/a}x^{b/a}\right) dx\right]\Phi(u), \quad \text{where } u = y^a x^{-b}.$$

In the integration, u is considered a parameter; $\Phi(u)$ 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.