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

General solution:

$$w = F(x,u)\left[\Phi(u) + \int \frac{g(x,\,ux^a)}{xF(x,u)}\,dx\right], \quad F(x,u) = \exp\left[\int \frac{1}{x} f(x,\,ux^a)\,dx\right],$$

where $u = yx^{-a}$ and $\Phi(u)$ is an arbitrary function. In the integration, u is considered a parameter.

Reference

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