3. $\dfrac{\partial w}{\partial x} + \left[f(x)e^{\lambda y} + g(x)\right]\dfrac{\partial w}{\partial y} = 0.$

1°. Principal integral: $\Xi = e^{-\lambda y}E + \lambda \int f(x)E\,dx$, where $E = \exp\left[\lambda \int g(x)\,dx\right]$.

2°. General solution: $w = \Phi(\Xi)$, where $\Phi(\Xi)$ 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.