



First-Order Partial Differential Equations > Linear Equations > Section 1.1

7. 
$$\frac{\partial w}{\partial x} + f(ax + by + c) \frac{\partial w}{\partial y} = 0, \quad b \neq 0.$$

1°. Principal integral:  $\Xi = \int \frac{dv}{a + bf(v)} - x$ , where  $v = ax + by + c$ .

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.