



First-Order Partial Differential Equations > Nonlinear Equations > Section 3.3

$$9. \quad w = x \frac{\partial w}{\partial x} + y \frac{\partial w}{\partial y} + F\left(\frac{\partial w}{\partial x}, \frac{\partial w}{\partial y}\right).$$

*Clairaut's equation.*

Complete integral:

$$w = C_1 x + C_2 y + F(C_1, C_2),$$

where  $C_1$  and  $C_2$  are arbitrary constants.

### References

**Kamke, E.**, *Differentialgleichungen: Lösungsmethoden und Lösungen, II, Partielle Differentialgleichungen Erster Ordnung für eine gesuchte Funktion*, Akad. Verlagsgesellschaft Geest & Portig, Leipzig, 1965.

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