

Section 4.1. Basics of Differentiation

Note. In this section Gentle gives a description of how to differentiate various types of objects with respect to other objects. This can be problematic in general. We will only consider differentiation of functions of scalars, vectors, and matrices with respect to scalars, vectors, and matrices. So we skip most of the material in this section (which is, in terms of rigor, a bit sketchy anyhow).

Note. Throughout, we use the derivative of function f with respect to object x (where x is a scalar, vector, or matrix) as $\partial f/\partial x$. More often than not, this will involve actual partial derivatives but we still use the notation everywhere.

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