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Of course this section will be included in section 3.1 where a rigorous treatement of the functional relation and implicit functions will be presented. However the operations involved will need only an application of the Chain rule. In this section we will assume that a relations $F(x_1, x_2, \ldots, x_n, y) = 0$, already defines a function $y = g(x_1, x_2, \ldots, x_n)$. This means the relation 2.43. Note that in the applications of chain rule we have two types of partial derivatives involve: $\partial_k F$ (means taking partial derivative of F with respect to its k^{th} input,) whereas $\frac{\partial g}{\partial x_j}$ means taking partial derivative of g with respect to the variable x_j. Even though in majority of cases these notations may mean the same thing, but sometimes the spot k is occupied by some function, instead of x_k. In such cases we must be ready to make the distinction. See this idea in action in 2.44. The ideas that we need to learn in this section are: 2.44, and the system's version, discussion on top of page 76 involving Cramer's rule.

In the textbook this idea is used in the following places:

- in 2.6 (see for example 2.49 and 2.50)
- in theorem 3.1 and 3.9 (see the discussions preceeding the two theorems.
- in section 4.5 we will revisit this idea in examples 2 and 3 and the exercises.