**Chain Rules for Functions of Several Variables**

Table of Contents

[Implicit Partial Differentiation 3](#_Toc82189878)

Say and . Thus,

The above process is known as the **chain rule**.

From this, if we shift to functions of **two variables**, the situation becomes like this:

This can be extended further to accommodate more variables.

We can even consider a case where the independent variables themselves are functions of two variables.

## Implicit Partial Differentiation

An **implicit function** is one where the **independent variable cannot be determined**. For example, is an implicit function.

For such functions, when finding the derivative **implicitly**, we consider one variable to be a function of the other. Thus, for the above example,

For **multiple variables**, such a scenario is solved as: