

A function of two or more variables is a mathematical rule that assigns a single real value to each ordered set of input variables. Unlike single-variable functions, these functions depend on two or more independent quantities. For example, a function of two variables can be written as $f(x, y)$, where the value of the function depends on both x and y . Such functions are widely used to model real-life situations where more than one factor influences the outcome. For instance, the area of a rectangle depends on both its length and width, while temperature distribution in a room depends on position in space. Functions of three variables, such as $f(x, y, z)$, are commonly used in physics and engineering to describe motion, pressure, and density. These functions can be represented graphically using surfaces or contour plots. Overall, functions of two or more variables play an important role in mathematics and applied sciences by helping us understand complex relationships between multiple quantities.