Interpolation

Definition of Interpolation

After reading this chapter, you should be able to:

1. *Understand what Interpolation is.*

What is Interpolation?

Many a times, a function $y = f(x)$ *is given only at discrete points such as* $(x_0, y_0), (x_1, y_1), \ldots\ldots, (x_{n-1}, y_{n-1}), (x_n, y_n)$.

How does one find the value of y at any other value of x***?***

Well, a continuous function $f(x)$ *may be used to represent the* $n+1$ *data values with* $f(x)$ *passing through the* $n+1$ *points. Then one can find the value of* y *at any other value of* x. *This is called interpolation. Of course, if* x *falls outside the range of* x *for which the data is given, it is no longer interpolation but instead is called extrapolation.*

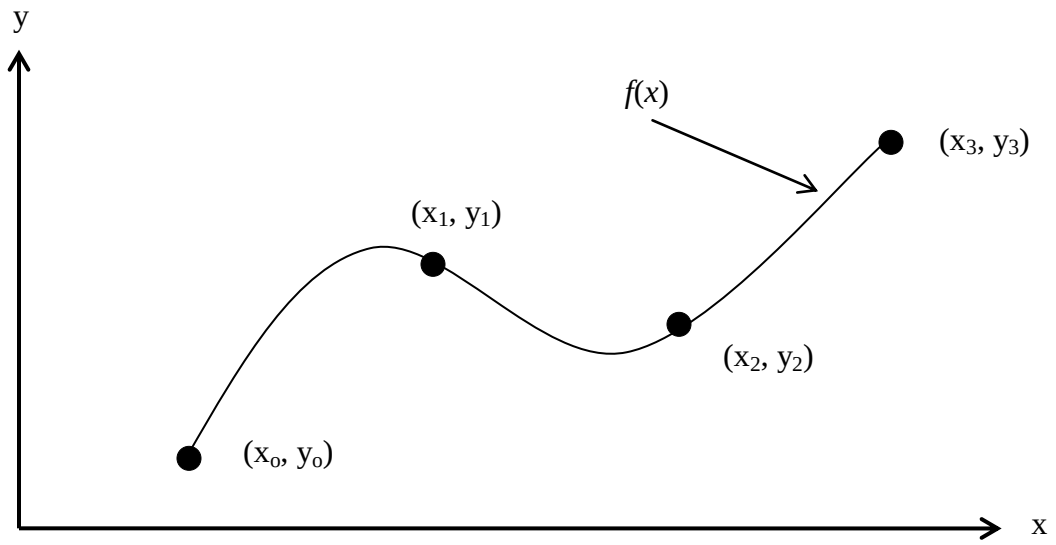

Figure 1 *Interpolation of discrete data*