05.01
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.

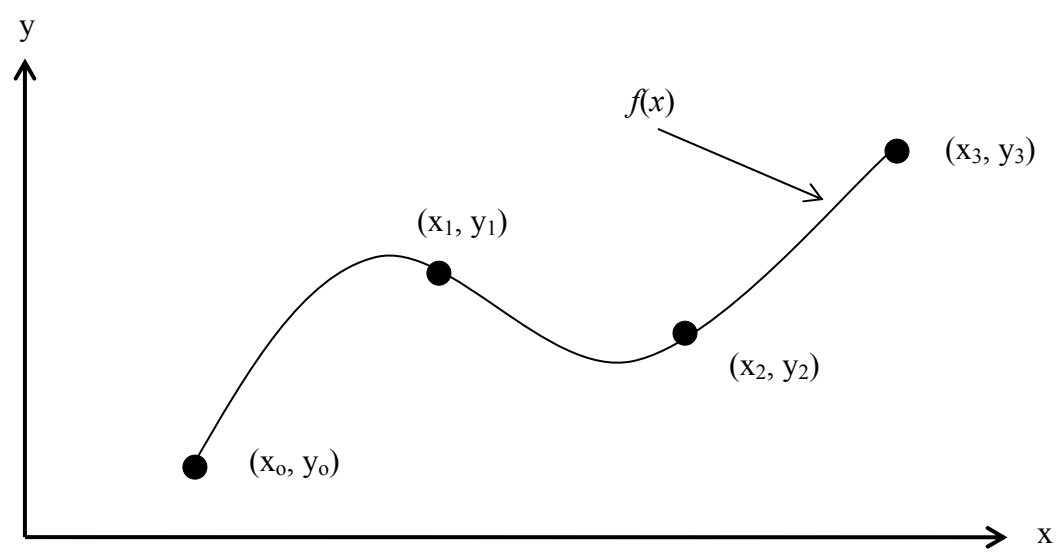

Figure 1 Interpolation of discrete data

INTERPOLATION	
Topic	Definition of Interpolation
Summary	Textbook notes on the definition of interpolation, with graph.
Major	All Majors of Engineering
Authors	Autar Kaw
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Web Site	http://numericalmethods.eng.usf.edu