In the determination of both the Fourier cosine series and full Fourier series the values for a0, an, and bn are typically determined by an integral featuring a function f(x).However, given that there is no function given for the rocket data set, the integrals were evaluated as a series. The transition can be found below.

For the values from a to b, the integral of the function is equal to the summation of all f(x) values multiplied by a very small change in x. For the cosine series, it was only necessary to calculate a0 and an. The integrals for these values are given as

In series notation, these would be given by

In this case, L would vary from 0 to 50 seconds for the given data set. The full Fourier series would be given by

Substituting the values for a0, an, and bn, the Fourier series would be given by

Using a similar fashion, the cosine series would be given by