

A SIMPLE METHOD FOR INTEGRATION BY PARTS

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ABSTRACT

A simple method for integration by parts is described. The underlying principle is the same as that of the conventional method, but the present form is much simple and easy to use.

INTRODUCTION

A simple method for integration by parts is described here. The underlying principle of the method is the same as that used in the conventional method, but the present form is much simple and easy to use. The method will be much helpful to beginners who always have trouble with integration by parts.

In the conventional method one often gets confused with the plus and minus signs and the repeated integration, especially, when the integration involves several steps. The method described here is simple and straight-forward and there is no confusion either with the plus and minus signs or with the repeated integration.

In the present method, like the conventional method, one has to choose the first and second functions in such a way that the derivative of the first function eventually goes to zero and the second function is readily integrable. In the conventional method one has⁽¹⁾

$$\int U dV = UV - \int V dU + C$$

where U and dV are called first and second functions, respectively. The integration on the right hand side, in general, may involve several times integration by parts.

The following is the procedure used for integration in the present method :

1. Designate the two functions involved in the integration as first and second function, keeping in mind the criterion mentioned earlier.
2. Write down the first and second functions in two respective columns.