

Integration KeyPoints

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When we are evaluating an integral we are finding the area under a curve between certain limits.

The integral formulae that you need to know are:-

$$\int x^n dx = \frac{x^{(n+1)}}{(n+1)} + C$$

$$\int \cos(ax) dx = \frac{\sin(ax)}{a} + C$$

$$\int \sin(ax) dx = \frac{-\cos(ax)}{a} + C$$

$$\int (ax + b)^n dx = \frac{(ax + b)^{n+1}}{a(n+1)} + C$$

1. If you have a function that goes above and below the x-axis between the limits you are interested in you have to split the integral into parts above the x-axis and parts below the x-axis. When doing the integral below the axis we need to put a negative sign in front of the integral to make the answer positive (can't get a negative area).
2. If you are evaluating an integral between two functions then you simply use the formula.

$$\int_a^b (F(x) - G(x)) dx = \int_a^b F(x) dx - \int_a^b G(x) dx$$

Where $F(x)$ =function 1 and $G(x)$ =function 2