Definite Integration

Indefinite Integration	Definite Integration
When we find an **indefinite** integral, we find a **function** + an arbitrary constant	When we find a **definite** integral, we find a **numerical value**
$\int f'(x)dx = f(x) + c$	$\int_a^b f'(x)dx = f(b) - f(a)$ $\int_a^b f'(x)dx = [f(x)]_a^b$
Example	
$\int \frac{1}{x}dx = lnx + c$	$\int_1^e \frac{1}{x}dx = [\ln\|x\|]_1^e = ln(e) - ln(1)$

Be careful with your notation

Make sure that you know how to evaluate definite integrals on your calculator.

Properties

Exam questions often test your conceptual understanding of the definite integration. It is important that you know and understand the following properties:

$$\int_a^b f(x)dx = -\int_b^a f(x)dx$$

$$\int_a^a f(x)dx = \mathbf{0}$$

$$\int_a^b \boldsymbol{k}f(x)dx = \boldsymbol{k}\int_a^b f(x)dx$$

$$\int_a^c f(x)dx = \int_b^c f(x)dx + \int_a^b f(x)dx$$

$$\int_a^b (f(x) \pm g(x))dx = \int_a^b f(x)dx \pm \int_a^b g(x)dx$$