O Level A Maths Tutorial 13: Integration

Syllabus :

• Integration as the reverse of differentiation

• Integration of x^n for any rational n, sin x, cos x, $\sec^2 x$ and e^x, together with constant multiples, sums and differences

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1. Using the idea that integration is the opposite of differentiation, fund the results of integrating the following functions :

(a)   1   (b) x^2 (c) x^n (d)   sin x

(e)   cos x   (f) $\sec^2 x$ (g) e^x (h) $2x^2 + x^3$

(i)   sin 3x   (j) e^{-2x} (k) $x^2 + \sin 3x$ (l)   1/x

• Integration of $(ax+b)^n$ for any rational n, sin $(ax + b)$, cos $(ax + b)$ and e^{ax+b}

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2. (a) $(2x+3)^4$ (b)   sin $(2x + \pi/6)$

   (c)   cos $(3x + \pi/3)$ (d) e^{3x+2}