

Trig

$$\int \sin 3x \, dx = -\frac{1}{3} \cos 3x + C$$

learn

$$\int \cos ax \, dx = \frac{1}{a} \sin ax + C$$

$$\int \sin ax \, dx = -\frac{1}{a} \cos ax + C$$

$$(ii) \int \cos 8x \, dx = \frac{1}{8} \sin 8x + C$$

$$= \frac{\sin 8x}{8} + C$$

$$(iii) \int 2 \cos 5x \cos x \, dx.$$

Iolraigh a thiontú ina suimeanna agus ina ndifríochtaí

Products to sums and differences

$$2 \cos A \cos B = \cos(A+B) + \cos(A-B)$$

$$2 \sin A \cos B = \sin(A+B) + \sin(A-B)$$

$$2 \sin A \sin B = \cos(A-B) - \cos(A+B)$$

$$2 \cos A \sin B = \sin(A+B) - \sin(A-B)$$

$$\int (\cos 6x + \cos 4x) \, dx$$

$$\frac{1}{6} \sin 6x + \frac{1}{4} \sin 4x + C$$

$$(14) \int \sin 5x \sin 2x \, dx.$$

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Products to sums and differences

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$$2 \cos A \sin B = \sin(A+B) - \sin(A-B)$$

$$\sin A \sin B = \frac{1}{2} [\cos(A-B) - \cos(A+B)]$$

$$\frac{1}{2} \int (\cos 3x - \cos 7x) \, dx$$

$$\frac{1}{2} \left[\frac{1}{3} \sin 3x - \frac{1}{7} \sin 7x \right] + c$$

$$\frac{1}{6} \sin 3x - \frac{1}{14} \sin 7x + c$$

Exponential.

$$e^{ax} \Rightarrow \frac{1}{a} e^{ax} \text{ Tables.}$$

$$\int e^{9x} \, dx = \frac{1}{9} e^{9x} + c$$

$$(ii) \int e^{6x+3} dx = \frac{1}{6} e^{6x+3} dx$$

$$(iii) \int \frac{dx}{e^{7x}} = \int e^{-7x} dx$$

$$= -\frac{1}{7} e^{-7x} + C$$

$$= -\frac{1}{7e^{7x}} + C$$