

JACK / YERITON EMMANUEL

19/MHS01/213

② $\cos 4x \sin 3x$

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

$$A = 4x \quad B = 3x$$

$$\int \cos 4x \sin 3x dx = \int \frac{1}{2} [\cos 7x + \sin x]$$

$$= \frac{1}{2} [\sin 7x + \sin x]$$

$$= \frac{1}{2} \frac{\sin 7x}{7} + \sin x$$

$$= \frac{\sin 7x}{14} - \frac{2x}{2} + C$$

③ $\cos x \sin 3x$

$\sin 3x \cos x$

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

$$A = 3, B = 1$$

$$\int \sin 3x \cos x dx = \frac{1}{2} [\sin 4x + \sin 2x]$$

$$= \frac{1}{2} \frac{\sin 4x}{4} + \frac{\sin 2x}{2}$$

$$= \frac{\sin 4x}{8} + \frac{\sin 2x}{4} + C$$

① $\sin 6x$

$6x \sin$

$$u = 6x, \quad du = 6$$

$$v = -\cos$$

$$\int u dv = uv - \int v du$$

$$= 6x \cos + \int \cos 6$$

$$= -\cos 6x + \sin 6$$