

UW 3 - Silabus. Fina

① $\boxed{\frac{x^2}{2} + K} //$

② $\frac{x^{-3+1}}{-3+1} = \frac{x^{-2}}{-2} = \frac{-x^{-2}}{2}$
 $\boxed{\frac{-1}{2x^2} + K} //$

③ $\int x^{\frac{1}{5}} dx$

$\frac{x^{\frac{1}{5}+1}}{\frac{1}{5}+1} = \frac{x^{\frac{6}{5}}}{\frac{6}{5}} = \frac{5x^{\frac{6}{5}}}{6} + K$ ③

④ $10x \int x^{\frac{1}{2}} dx$

$10x \cdot \frac{x^{\frac{1}{2}+1}}{\frac{1}{2}+1} = \frac{10x \cdot x^{\frac{3}{2}}}{\frac{3}{2}} = \frac{10x \cdot 2x^{\frac{3}{2}}}{3}$

$\frac{10x \cdot 2\sqrt{x^3}}{3} =$

④ $\boxed{\frac{20x \cdot \sqrt{x^3} + K}{3}} //$

$$\textcircled{5} \int x(3x^2+2)^5 dx \quad \text{let } 3x^2+2=v$$

$$\int v^5 dv \rightarrow \frac{1}{6} x \int v^5 dv = \frac{1}{6} x \frac{v^6}{6}$$

$$\frac{1}{6} x \cdot \frac{v^6}{6} \rightarrow \frac{1}{36} x (3x^2+2)^6$$

$$\boxed{\frac{(3x^2+2)^6 + K}{36}}$$

~~1) $\int \cos x \sin 2x \cos 3x dx$~~

$$\textcircled{6} \int [(5x^4)+2x]^3 (20x^3+2) dx$$

$$\int v^3 dv \rightarrow \frac{v^4}{4} = \frac{(5x^4+2x)^4 + K}{4}$$

$$\textcircled{7} \int \cos(\sin 2x) \cos 2x dx$$

$$\int \cos(v) dv$$

$$\frac{1}{2} \times \cos(v) dv = \frac{1}{2}$$

$$\frac{1}{2} \times \sin(v)$$

$$\frac{1}{2} \sin(\sin(2x))$$

$$\frac{\sin(\sin(2x)) + K}{2}$$

