

$$\textcircled{12} \int x^2 \sec^2(x^3) dx = \frac{1}{3} \int 3x^2 \sec^2(x^3) dx = \frac{1}{3} \tan(x^3) + C$$

$$\textcircled{13} \int \sec^2(\cos 3x) \sin 3x dx = -\frac{1}{3} \int \sec^2(\cos 3x) (-3 \sin 3x) dx \\ = -\frac{1}{3} \tan(\cos 3x) + C$$

$$\textcircled{14} \int \csc^2(\sin x) \cos x dx = -\cot(\sin x) + C$$

$$\textcircled{15} \int \sec(4x) \tan(4x) dx = \frac{1}{4} \int 4 \sec(4x) \tan(4x) dx = \frac{1}{4} \sec(4x) + C$$

$$\textcircled{16} \int \frac{\cos x}{\sin^2 x} dx = \int \frac{\cos x}{\sin x} \cdot \frac{1}{\sin x} dx = \int \cot x \csc x dx = -\csc x + C$$

$$\textcircled{17} \int \cos^3(2x) \sin(2x) dx = \int [\cos 2x]^3 \sin(2x) dx \\ = -\frac{1}{2} \int [\cos 2x]^3 (-2 \sin(2x)) dx = -\frac{1}{2} \frac{[\cos 2x]^4}{4} + C = -\frac{1}{8} [\cos 2x]^4 + C$$

$$\textcircled{18} \int \tan^3(5x) \sec^2(5x) dx = \frac{1}{5} \int \tan^3(5x) \cdot 5 \sec^2(5x) dx \\ = \frac{1}{5} \frac{\tan^4(5x)}{4} + C = \frac{1}{20} \tan^4(5x) + C$$

$$\textcircled{19} \int 3 \cot(3x) \csc^2(3x) dx = -\int 3 \cot(3x) \csc^2(3x) dx \\ = -\frac{(\cot(3x))^2}{2} + C = -\frac{1}{2} [\cot(3x)]^2 + C$$

$$\textcircled{20} \int \sec^3(2x) \tan(2x) dx = \int \sec^2(2x) \cdot \sec(2x) \tan(2x) dx \\ = \frac{1}{2} \int \sec^2(2x) \cdot 2 \sec(2x) \tan(2x) dx = \frac{1}{2} \frac{[\sec(2x)]^3}{3} + C$$

$$\textcircled{21} \int \cosh(2x-3) dx = \frac{1}{2} \int 2 \cosh(2x-3) dx = \frac{1}{2} \sinh(2x-3) + C$$