

SPECIAL Fx^n :

$$1 \int \frac{1}{x^2 + a^2} dx = \frac{1}{a} \tan^{-1} \frac{x}{a} + C$$

$$2 \int \frac{1}{x^2 - a^2} dx = \frac{1}{2a} \log \frac{(x+a)}{(x-a)} + C$$

$$3 \int \frac{1}{a^2 - x^2} dx = \frac{1}{2a} \log \frac{a+x}{a-x} + C$$

$$4 \int \frac{1}{\sqrt{x^2 + a^2}} dx = \log (x + \sqrt{x^2 + a^2}) + C$$

$$5 \int \frac{1}{\sqrt{x^2 - a^2}} dx = \log (x + \sqrt{x^2 - a^2}) + C$$

$$6 \int \frac{1}{\sqrt{a^2 - x^2}} dx = \sin^{-1} \frac{x}{a} + C$$

$$7 \int \sqrt{x^2 + a^2} dx = \frac{x}{2} \sqrt{x^2 + a^2} + \frac{a^2}{2} \log (x + \sqrt{x^2 + a^2}) + C$$

$$8 \int \sqrt{x^2 - a^2} dx = \frac{x}{2} \sqrt{x^2 - a^2} - \frac{a^2}{2} \log (x + \sqrt{x^2 - a^2}) + C$$

$$9 \int \sqrt{a^2 - x^2} dx = \frac{x}{2} \sqrt{a^2 - x^2} + \frac{a^2}{2} \sin^{-1} \frac{x}{a} + C$$