

$$\int \frac{1}{x^2} dx = \int x^{-2} dx = \ln|x| + C$$

log. naturel : base 2.718281

$$\int \frac{2x+1}{2x^2+2x+1} dx = \int \frac{1}{2x^2+2x+1} \cdot (2x+1) \cdot 2 \cdot \frac{1}{2} dx$$

$$(2x^2+2x+1)^{-1} \cdot (2x+1)$$

()'
↓
4x+2

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

$$= \frac{1}{2} \int \frac{1}{(2x^2+2x+1)^1} \cdot (2x^2+2x+1)' dx$$

$$\boxed{= \frac{1}{2} \ln |2x^2+2x+1| + C}$$

primitive de $\frac{2x+1}{2x^2+2x+1}$

$$\int \frac{x^2 + 3x + 3}{x+1} dx$$

$$\begin{array}{r|l} x^2 + 3x + 3 & x+1 \\ \hline x^2 + x & x+2 \\ \hline 2x + 3 & \\ 2x + 2 & \\ \hline 1 & \end{array}$$

$$x^2 + 3x + 3 = (x+1)(x+2) + 1$$

$$\frac{x^2 + 3x + 3}{x+1} = \frac{(x+1)(x+2)}{x+1} + \frac{1}{x+1}$$

$$= (x+2) + \frac{1}{x+1}$$

$$\int \frac{x^2 + 3x + 3}{x+1} dx = \int (x+2) dx + \int \frac{1}{x+1} dx$$

$\uparrow$ easy
 $\uparrow$ iton

$$= \frac{1}{2}x^2 + 2x + \ln|x+1| + C$$