

$$2 \text{aiii} \quad \int_0^4 \frac{5x+13}{(2x+1)(x+4)} dx$$

So,

$$\int \left(\frac{3}{(2x+1)} + \frac{1}{(x+4)} \right) dx \Rightarrow 3 \int \frac{1}{(2x+1)} + \frac{1}{(x+4)} dx.$$

For

$$\int \frac{1}{2x+1}$$

don't forget x3

$$u = 2x+1$$

$$\frac{du}{dx} = 2$$

$$\frac{1}{2} \int \frac{1}{u} du = \frac{\ln u}{2}$$

$$dx = \frac{1}{2} du$$

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

$$\int \frac{1}{x+4} = \ln u$$

$$u = x+4$$

$$\frac{du}{dx} = 1$$

$$= \ln(x+4)$$

$$dx = \frac{du}{1} = du$$

$$3 \times \frac{\ln(2x+1)}{2} + \ln(x+4)$$

So,

$$\frac{3 \ln(2x+1)}{2} + \ln(x+4) + C$$