

Integr sost

domenica 12 giugno 2022 17:20

$$\int \sin(e^x) e^x * dx$$

$$t = e^x$$

$$dy = f'(e^x) dx \rightarrow dy = e^x dx$$

$$\int \sin(t) * dt$$

$$- \cos t \rightarrow - \cos e^x$$

$$\int \cos x * \sin(\sin x) dx$$

$$t = \sin x$$

$$dt = f'(\sin x) = \cos x dx$$

$$\int \sin(t) dt$$

$$= - \cos t = - \cos(\sin x) + c$$

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

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

$$t = e^x$$

$$dt = e^x dx$$

$$\int \frac{1}{1 + t^2} dy$$

$$= \arctan t + c \rightarrow \arctan e^x + c$$

$$\int_0^{\sqrt{\pi}} x \cos x^2 dx$$

$$t = x^2$$

$$dy = 2x dx$$

$$0 \rightarrow 0^2 = 0$$

$$\sqrt{\pi} \rightarrow \pi$$

$$\int_0^{\pi} \cos t * \frac{1}{2} dt$$

$$\frac{1}{2} \int \cos t$$

$$\frac{1}{2} [\sin t]_0^{\pi} = 0$$

$$\int \frac{1}{x (\ln x + 1)} = \int \frac{1}{\ln x + 1} * \frac{1}{x}$$

$$t = \ln x + 1$$

$$dt = \frac{1}{x} dx$$

$$\int \frac{1}{t} * dt$$

$$= \ln t + c = \ln \ln x + 1 + c$$

$$\int \frac{\ln^2 x}{x} = \int \frac{1}{x} * \ln(x)^2 dx$$

$$t = \ln x$$

$$dt = \frac{1}{x} dx$$

$$\int t^2 dt$$

$$\frac{t^3}{3} = \frac{\ln x^3}{3}$$