Funkcija u - supstitucija

$$\left(e^{x^2}\right)' = e^{x^2} \cdot (x^2)' \qquad e^x$$

$$F(g(x))' = F'(g(x)) \cdot g'(x)$$

$$\int F'(g(x)) \cdot g'(x)\,dx = F(g(x)) + C$$

$$g(x) = u \Rightarrow \int F'(u)\,du = F(u) + C$$

$\int 2x e^{x^2} dx$ $\quad u = x^2$

$du = 2x\,dx$

$\int e^u du = e^u + C = e^{x^2} + C$

$\int \cos(3x)\, 3\,dx =$ $\quad u = 3x$

$du = 3\,dx$

$= \int \cos u\, du = \frac{1}{3}\int \cos u\, du = \frac{1}{3}\sin 3x + C$

$\int_1^2 2x e^{x^2} dx =$ $\quad u = x^2$ $\quad 1 \to 1$

$du = 2x\,dx$ $\quad 2 \to 4$

$= \int_1^4 e^u du =$

$x \to 1, 4 \ldots 2$

$u \to x^2 \to 1, \to 4$

$= e^u \Big|_1^4 = e^4 - e^1$