SELEKTIBITATEA - 2017 UZTAILA

$$I = \int (x+5) e^{3x} \, dx.$$

P (under $x+5$), E (under e^{3x})

$$\int u \, dv = u \cdot v - \int v \, du.$$

$$\begin{cases} u = x+5 \longrightarrow du = dx \\ dv = e^{3x} \longrightarrow v = \frac{1}{3}\int e^{3x} \, dx \end{cases}$$

$$v = \frac{1}{3} e^{3x}$$

$$I = (x+5) \cdot \frac{1}{3} e^{3x} - \int \frac{1}{3} e^{3x} \cdot dx =$$

$$= (x+5) \frac{1}{3} e^{3x} - \frac{1}{3}\frac{1}{3}\int 3 e^{3x} \, dx = \boxed{\frac{x+5}{3} \cdot e^{3x} - \frac{1}{9} e^{3x} + k.}$$