$$\int -6x \cdot e^x \, dx$$

$$= -6x \cdot e^x - \int -6 \cdot e^x \, dx$$

$$= -6x e^x - (-6e^x) = -6e^x \cdot (x-1)$$ — Melina

b) $\int \underset{u}{x} \underset{v'}{e^{2x}} \, dx = \underset{u}{x} \cdot \underset{v}{\frac{1}{2}e^{2x}} - \int \underset{u'}{1} \cdot \underset{v}{\frac{1}{2}e^{2x}} \, dx$ ✓

$$= \frac{1}{2}x e^{2x} - \frac{1}{4}e^{2x} = \frac{1}{2}e^{2x} \cdot \left(x - \frac{1}{2}\right)$$ ✓

Noah

© $\int 2x \cdot e^{3x} dx$

$\int 2xe^{3x} dx = 2x \cdot \frac{1}{3}e^{3x} - \int 2 \cdot \frac{1}{3} e^{3x} dx$ $= 2x \cdot \frac{1}{3}e^{3x} - \frac{2}{9} e^{3x}$

$= \frac{2 \cdot (3x-1) \cdot e^{3x}}{9}$ -Jasmin ✓

2a) $\int_0^1 4x \cdot e^x dx = [4x \cdot e^x] - \int 4e^x dx = [4x \cdot e^x] - [4e^x]$

$= F(1) - F(0) = ((4 \cdot 1 \cdot e^1) - (4 \cdot e^1) - (4 \cdot 0 \cdot e^0) - (4 \cdot e^0)) = 4$

-Nejla

✓

b) $\int_0^2 -2x\, e^{-x}\, dx = -2x \cdot (-1)e^{-x}\Big|_0^2 - \int_0^2 -2 \cdot (-1)e^{-x}\, dx$

$= 2xe^{-x}\Big|_0^2 - (-2e^{-x})\Big|_0^2$

$= \left((2 \cdot 2e^{-2}) - (2 \cdot 0e^{-0})\right) - \left((-2e^{-2}) - (-2e^{-0})\right)$

$= \left((4e^{-2}) - 0\right) - \left((-2e^{-2}) - (-2e^{-0})\right)$

$= 6e^{-2} - (-2e^{-2} + 2)$

$= 8e^{-2} - 2$

$= -0{,}917$

Nach

c) $\int_1^2 2xe^{3x}\,dx = 2x\cdot\frac{1}{3}e^{3x}\Big|_1^2 - \int_1^2 2\cdot\frac{1}{3}e^{3x}\,dx$

$= \frac{2}{3}xe^{3x}\Big|_1^2 - \frac{2}{9}e^{3x}\Big|_1^2$

$= \left(\left(\frac{2}{3}\cdot 2\cdot e^{3\cdot 2}\right) - \left(\frac{2}{3}\cdot 1\cdot e^{3\cdot 1}\right)\right) - \left(\frac{2}{9}\cdot e^{3\cdot 2} - \frac{2}{9}\cdot e^{3\cdot 1}\right)$

$= \left(\frac{4}{3}e^6 - \frac{2}{3}e^3\right) - \left(\frac{2}{9}e^6 - \frac{2}{9}e^3\right)$

$= \frac{10}{9}e^6 - \frac{4}{9}e^3$

$\approx 439,33$

Noah

d) $\int_{-4}^{4} xe^{-x}dx = x\cdot(-1)e^{-x}\Big|_{-4}^{4} - \int_{-4}^{4} 1\cdot(-1)e^{-x}dx$

$= \left((4\cdot(-1)\cdot e^{-4}) - ((-4)\cdot(-1)e^{-(-4)})\right) - e^{-x}\Big|_{-4}^{4}$

$= (-4e^{-4} - (4e^{4})) - (e^{-4} - (e^{4}))$

$= -5e^{-4} - 3e^{4}$

$= \underline{\underline{-6{,}71\cdot 10^{-73}}}$? Nööl

c) $\int_0^5 xe^{2x}\,dx = x\cdot\frac{1}{2}e^{2x}\Big|_0^5 - \int_0^5 1\cdot\frac{1}{2}e^{2x}\,dx$

$= \frac{1}{2}xe^{2x}\Big|_0^5 - \frac{1}{4}e^{2x}\Big|_0^5$

$= \left(\frac{1}{2}\cdot 5\cdot e^{10} - \frac{1}{2}\cdot 0\cdot e^{0}\right) - \left(\frac{1}{4}e^{10} - \frac{1}{4}e^{0}\right)$

$= 55.066,16 - 5.506,37$

$\approx 49.559,79$ Mal

f) $\int_0^3 4x \cdot x^3 dx = \int_0^3 4x^3 dx = x^4 \Big|_0^3 = 3^4 - 0^4 = \underline{\underline{81}}$

Noah