.colare

1) $\int_1^2 \left(4\sqrt{x} - \frac{1}{2x}\right) dx$ 2) $\int_1^2 \left(x - \frac{4}{e^{2x}}\right) dx$

$\Rightarrow$ 1) $4\int_1^2 \sqrt{x}\,dx - \int_1^2 \frac{1}{2x}\,dx = 4\int_1^2 x^{1/2}dx - \frac{1}{2}\int_1^2 \frac{1}{x}\,dx =$

$4\,\frac{x^{1/2+1}}{\frac{1}{2}+1} - \frac{1}{2}\ln|x|\Big]_1^2 = \left[\frac{8}{3}x\sqrt{x} - \frac{1}{2}\ln|x|\right]_1^2 =$

$\left(\frac{8}{3}\cdot 2\cdot\sqrt{2} - \frac{1}{2}\ln 2\right) - \left(\frac{8}{3} - \frac{1}{2}\ln 1\right) = \frac{16}{3}\sqrt{2} - \frac{1}{2}\ln 2 - \frac{8}{3}$

— ∘ —

2) $\int_1^2 x\,dx - 4\int_1^2 e^{-2x}dx = \frac{x^2}{2} - \frac{4}{-2}\int_1^2 -2e^{-2x}dx =$

$= \frac{x^2}{2} + 2e^{-2x}\Big]_1^2 = \left(\frac{4}{2} + 2e^{-4}\right) - \left(\frac{1}{2} + 2e^{-2}\right) = \frac{3}{2} + 2\left(e^{-2} + e^{-4}\right)$