Question 23531 is the integral of $f(x)$ multiplied by integral of $g(x)$ the same as integral of $f(x)$ multiplied by $g(x)$? .
Solution. The answer is 'no'. Take $f(x) = g(x) = x$, so $\int f(x)\,dx \int g(x)\,dx = (x^2/2+C_1)(x^2/2+C_2)$, on the other hand $\int f(x)g(x)\,dx = x^3/3+C_3$, which are obviously not equal.