

[2 POINTS] Evaluate $\int x^3 (\ln x)^2 dx$.

[3 POINTS] Evaluate $\int \cos 2x \sin 3x dx$.

[4 POINTS] Evaluate $\int x^4 \cos x dx$ using the reduction formula $\int u^n \cos u du = u^n \sin u + nu^{n-1} \cos u - n(n-1) \int u^{n-2} \cos u du$.
DO NOT USE INTEGRATION BY PARTS BY TABLE.

[4 POINTS]

Evaluate $\int \frac{\sqrt{x^2 - 1}}{x} dx$.

[7 POINTS]

Evaluate $\int \frac{4}{x^3 - 2x^2 + 2x} dx$.