

Evaluate the following integrals.

1. $\int x e^{2x} dx$
2. $\int x \sin(5x) dx$
3. $\int x^2 \cos(3x) dx$
4. $\int (\ln x)^2 dx$
5. $\int x \ln x dx$
6. $\int x^3 e^{2x} dx$
7. $\int x^2 \sin(7x) dx$
8. $\int e^{2x} \sin(3x) dx$
9. $\int e^{-y} \cos(3y) dy$
10. $\int_0^1 s e^{-s} ds$
11. $\int_0^{\pi/2} t \cos(2t) dt$
12. $\int_0^1 x^2 e^{-x} dx$
13. $\int (3z + 2)e^z dz$
14. $\int x^3 e^{x^2} dx$
15. $\int \sin(\ln x) dx$