

Write out the first few steps for finding each of these integrals:

1. $\int x^2 \sin(3x) dx$

2. $\int \sin^2 x \cos^3 x dx$

3. $\int \sin^{-1} x dx$

4. $\int \frac{2x^2 + 3x - 8}{(x-4)(x+2)^2} dx$

5. $\int \tan x dx$

6. $\int \ln(x) dx$

7. $\int \frac{4x^2 + 5x}{(x-1)(x^2 + 2)} dx$

8. $\int \frac{2}{(9x^2 - 1)^{3/2}} dx$

9. $\int \tan^2 x dx$

10. $\int \frac{x}{e^x} dx$

11. $\int \frac{1}{x^2 \sqrt{4+x^2}} dx$

12. $\int x^3 \ln x dx$

13. $\int_0^\pi \sin^2 x dx$

14. $\int \frac{3x^2}{\sqrt{25-x^2}} dx$

15. $\int \frac{4x^2 + 3x - 1}{2x^2 - x - 6} dx$

16. $\int_0^{\pi/4} \sec^4 x dx$