

AP Calculus AB: Practice of Integration with Substitution (SWOK)

1. $\int \sqrt{3x-2} dx$
2. $\int \sqrt[3]{8x+5} dx$
3. $\int 3 \sin 4x dx$
4. $\int x^2 \sqrt{x^3-1} dx$
5. $\int \frac{x}{\sqrt[3]{1-2x^2}} dx$
6. $\int (x^2+1)^2 dx$
7. $\int \frac{(\sqrt{x}+3)^2}{\sqrt{x}} dx$
8. $\int \cos(4x-3) dx$
9. $\int \frac{t-2}{(t^2-4t+3)^3} dt$
10. $\int \frac{\cos \sqrt[3]{x}}{\sqrt[3]{x^2}} dx$
11. $\int \cos 3x \sqrt[3]{\sin 3x} dx$
12. $\int \frac{x^2+3}{\sqrt{x}} dx$
13. $\int \sin x(1+\cos x)^2 dx$
14. $\int \frac{\sin x}{\cos^4 x} dx$
15. $\int \frac{\tan x}{\cos x} dx$
16. $\int \frac{\cos x}{(1-\sin x)^2} dx$
17. $\int \sec^2(3x-4) dx$
18. $\int \sec^2 3x \tan 3x dx$
19. $\int \frac{1}{\sin^2 5x} dx$
21. $\int x \cot(x^2) \csc(x^2) dx$
22. Solve the differential equation: $f''(x) = 16\cos(2x) - 3\sin x$; $f(0) = -2$; $f'(0) = 4$

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