

AP Calculus BC
More Practice with u – Substitution

1. $\int x(x^2 - 2)^{15} dx$

2. $\int \sqrt[4]{x+5} dx$

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

4. $\int x^3 \cos(x^4 - 2) dx$

5. Suppose that $\frac{dy}{dx} = \frac{2x}{(x^2 + 1)^2}$ and that $y = 1$ when $x = 0$. Find y when $x = 1$.

6. Suppose that $\frac{dy}{dx} = (4x^3 + 3x)\sqrt{x^4 + \frac{3}{2}x^2 + 1}$ and that $y = \frac{2}{3}$ when $x = 0$. Find y when $x = 1$.

7. $\int_0^{\frac{\pi}{2}} \cos x \sqrt[4]{\sin x} dx$

8. $\int_0^{\sqrt[3]{\frac{\pi}{2}}} x^2 \sin(x^3) dx$

9. $\int_0^1 x^3 \sqrt[3]{x^4 + 2} dx$

10. $\int_0^{\frac{\pi}{2}} \cos(\sin x) \cos x dx$

11. $\int_0^{\frac{\pi}{2}} \frac{\sin 2x}{\sqrt[3]{\cos 2x + 2}} dx$

12. $\int_0^{\frac{\pi}{4}} \sin 2x \sqrt[3]{\cos 2x} dx$