

U-Substitution Tiered Practice

Quick Integrals

1. $\int 4 \sin 5x \, dx$

2. $\int e^{3x} \, dx$

3. $\int 7 \sec^2(2 - 3x) \, dx$

4. $\int \csc(\pi x) \cot(\pi x) \, dx$

5. $\int (2x - 5)^4 \, dx$

6. $\int \frac{e^{-5x}}{2} \, dx$

7. $\int 2\sqrt{9x - 5} \, dx$

8. $\int -7^{5-2x} \, dx$

Helpful Hints U-Substitution

9. $\int \sin \theta \cos^3 \theta \, d\theta$ Let $u = \cos \theta$

10. $\int \frac{(\ln x)^3}{x} \, dx$ Let $u = \ln x$

11. $\int \frac{\sec^2 \sqrt{x}}{\sqrt{x}} \, dx$ Let $u = \sqrt{x}$

12. $\int e^{2x} \cos e^{2x} \, dx$ Let $u = e^{2x}$

13. $\int (2x + 3)\sqrt{5x^2 + 15x} \, dx$ Let $u = 5x^2 + 15x$

Intermediate U-Substitution

14. $\int 7x^2 e^{x^3} \, dx$

15. $\int x \cdot 3^{5x^2} \, dx$

16. $\int \frac{10x}{8-x^2} \, dx$

17. $\int \frac{\sec^2\left(\frac{\pi}{x}\right)}{x^2} \, dx$

18. $\int e^{3x} \sec(e^{3x}) \tan(e^{3x}) \, dx$

19. $\int \frac{\sin(\ln x)}{x} \, dx$