

CALCULUS  
Integration by substitution:  
Problems  
NEW

NEW 0670-1. a. Compute  $\int (3x + 4)^{100} dx$  by making the substitution  $u = 3x + 4$ .

b. Check your answer by differentiating.

NEW 0670-2. a. Compute  $\int x[(3x^2 + 4)^{100}] dx$  by making the substitution  $u = 3x^2 + 4$ .

b. Check your answer by differentiating.

NEW 0670-3. a. Compute  $\int \frac{x^2 dx}{\sqrt{3 - 5x^6}}$  by

making the substitution  $u = x^3 \sqrt{5/3}$ .

b. Check your answer by differentiating.

0670-4. Evaluate  $\int x^2 e^{x^3+4} dx$ .

0670-5. Evaluate  $\int x^2 e^{-2x^3+5} dx$ .

0670-6. Evaluate  $\int x^2 (\pi x^3 + \sqrt{2})^{55} dx$ .

0670-7. Evaluate  $\int [x^2 + 6x] [\cos(x^3 + 9x^2)] dx$ .

0670-8. Evaluate  $\int \frac{\sec^2(\ln x)}{x} dx$ .

0670-9. Evaluate  $\int (\csc^7 x) (\cot x) dx$ .

0670-10. Evaluate  $\int_8^9 x^3 e^{x^4-1} dx$ .

0670-11. Evaluate  $\int_{\pi/6}^{\pi/4} (e^{\sec x})(\sec x)(\tan x) dx$ .

0670-12. Evaluate  $\int_{\pi/4}^{\pi/6} (e^{\sec x})(\sec x)(\tan x) dx$ .

0670-13. Evaluate  $\int_9^{36} \frac{e^{6/\sqrt{x}}}{\sqrt{x^3}} dx$ .

0670-14. Evaluate  $\int_{e^2}^{e^7} \frac{\cos(\ln x)}{x} dx$ .

0670-15. Evaluate  $\int_8^9 x^3 e^{x^4-1} dx$ .

0670-16. Evaluate  $\int_{\pi/6}^{\pi/4} (e^{\sec x})(\sec x)(\tan x) dx$ .

0670-17. Evaluate  $\int_{\pi/4}^{\pi/3} [1 - (\csc^3 x)][\cos x] dx$ .

0670-18. Evaluate  $\int_9^{36} \frac{e^{6/\sqrt{x}}}{\sqrt{x^3}} dx$ .

0670-19. Evaluate  $\int_{e^2}^{e^7} \frac{\cos(\ln x)}{x} dx$ .