CALCULUS
Integration by substitution:
Problems
OLD2

0670-1. OLD2 a. Compute $\int \sin(3x + 4)\, dx$ by

making the substitution $u = 3x + 4$.

b. Check your answer by differentiating.

0670-2. OLD2 a. Compute $\int x[\sin(3x^2 + 4)]\, dx$ by

making the substitution $u = 3x^2 + 4$.

b. Check your answer by differentiating.

0670-3. OLD2 a. Compute $\int \dfrac{x^2\, dx}{3 + 5x^6}$ by

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

b. Check your answer by differentiating.

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

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

0670-6. Evaluate $\int x^2(2x^3+5)^{55}\,dx.$

0670-7. Evaluate $\int [x^2+3][\cos(x^3+9x+5)]\,dx.$

0670-8. Evaluate $\int \dfrac{\cos(\ln x)}{x}\,dx.$

0670-9. Evaluate $\int \left(\sec^7 x\right)(\tan x)\,dx.$

0670-10. Evaluate $\displaystyle\int_{6}^{7} x^2 e^{x^3}\, dx$.

0670-11. Evaluate $\displaystyle\int_{\pi/6}^{\pi/4} \left(e^{\cot x}\right)\left(\csc^2 x\right)\, dx$.

0670-12. Evaluate $\displaystyle\int_{\pi/4}^{\pi/6} \left(e^{\cot x}\right)\left(\csc^2 x\right)\, dx$.

0670-13. Evaluate $\displaystyle\int_{9}^{25} \frac{e^{3\sqrt{x}}}{\sqrt{x}}\, dx$.

0670-14. Evaluate $\displaystyle\int_{e^2}^{e^7} \frac{1}{x(\ln x)^3}\, dx$.

4

0670-15. Evaluate $\displaystyle\int_6^7 x^2 e^{x^3}\, dx$.

0670-16. Evaluate $\displaystyle\int_{\pi/6}^{\pi/4} \left(e^{\cot x}\right)\left(\csc^2 x\right)\, dx$.

0670-17.
Evaluate $\displaystyle\int_0^{\pi/2} [(\cos x) + (\cos^3 x)][\sin x]\, dx$.

0670-18. Evaluate $\displaystyle\int_9^{25} \frac{e^{3\sqrt{x}}}{\sqrt{x}}\, dx$.

0670-19. Evaluate $\displaystyle\int_{e^2}^{e^7} \frac{1}{x(\ln x)^3}\, dx$.