PRACTICE PROBLEM SET 24

Evaluate the following integrals. The answers are in Chapter 21.

1. $\displaystyle\int \frac{\sec^2 x}{\tan x}\,dx$ $\ln|\tan x| + c$

2. $\displaystyle\int \frac{\cos x}{1-\sin x}\,dx$ $-\ln|1-\sin x| + c$

3. $\displaystyle\int \frac{1}{x\ln x}\,dx$ $\ln|\ln x| + c$

4. $\displaystyle\int \frac{1}{x}\cos(\ln x)\,dx$ $\sin(\ln x) + c$

5. $\displaystyle\int \frac{\sin x - \cos x}{\cos x}\,dx$ $-\ln|\cos x| - x + c$

6. $\displaystyle\int \frac{dx}{\sqrt{x}(1+2\sqrt{x})}$ $\ln|1+2\sqrt{x}| + c$

7. $\displaystyle\int \frac{e^x\,dx}{1+e^x}$ $\ln|1+e^x| + c$

8. $\displaystyle\int xe^{5x^2-1}\,dx$ $\frac{1}{10}e^{5x^2-1} + c$

9. $\displaystyle\int e^x\cos(2+e^x)\,dx$ $\sin(2+e^x) + c$

10. $\displaystyle\int \frac{e^x+e^{-x}}{e^x-e^{-x}}\,dx$ $\ln|e^x-e^{-x}| + c$

11. $\displaystyle\int x4^{-x^2}\,dx$ $-\frac{4^{-x^2}}{2\ln 4} + c$

12. $\displaystyle\int 7^{\sin x}\cos x\,dx$ $\frac{7^{\sin x}}{\ln 7} + c$

$v = -x^2$

$-\frac{1}{2}\,dv = -\frac{1}{2}(4^v)\,dv$

$-\frac{1}{2}\,dv = -2x\,dx$

$-\frac{1}{2}\cdot\frac{4^{-x^2}}{\ln 4} + c$

$= \frac{7}{\ln 7}$