

Midterm III Review Problems

From Sec 7.5 List of Integrals to Solve

$$\textcircled{3} \int \frac{\sin(x) + \sec(x)}{\tan(x)} dx$$

$$\textcircled{5} \int_0^2 \frac{2t}{(t-3)^2} dt$$

$$\textcircled{9} \int_1^3 r^4 \cdot \ln(r) dr$$

$$\textcircled{10} \int \frac{x-1}{x^2-4x-5} dx$$

$$\textcircled{11} \int \frac{x-1}{x^2-4x+5} dx$$

$$\textcircled{13} \int \sin^3(\theta) \cos^5(\theta) d\theta$$

$u = \sin$ or $u = \cos$

$$\textcircled{17} \int x \cdot \sin^2(x) dx$$

$\downarrow$
 $\frac{1}{2}(1 - \sin 2x)$

$$\textcircled{23} \int (1 + \sqrt{x})^8 dx$$

$$(27) \int \frac{1}{1+e^x} dx$$

$$(43) \int e^x \sqrt{1+e^x} dx$$

$$\textcircled{51} \int \frac{1}{x\sqrt{4x^2+1}} dx$$

$$\textcircled{10} \int \frac{1}{x^5\sqrt{9x^2-1}} dx$$

⑦ $\int_0^{2\sqrt{3}} \frac{x^3}{\sqrt{16-x^2}} dx$