

Math 1510 Tutorial 11

I. Evaluate the definite integral.

$$\begin{aligned} \text{(a)} \int_{-1}^2 \sqrt[3]{x} \, dx & \quad \text{(b)} \int_{-1}^1 (x^3 - 2x^2 + x - 1) \, dx & \quad \text{(c)} \int_0^\pi \sin x \, dx & \quad \text{(d)} \int_0^2 2^x \, dx \\ \text{(e)} \int_{-4}^{-2} \frac{dx}{x} & \quad \text{(f)} \int_1^2 \frac{(\sqrt{x} + \sqrt[3]{x^2})^2}{x} \, dx & \quad \text{(g)} \int_0^2 |1 - x| \, dx \end{aligned}$$

II. Evaluate the definite integral using change of variable.

$$\begin{aligned} \text{(a)} \int_1^2 \frac{dx}{2x-1} & \quad \text{(b)} \int_e^{e^2} \frac{1}{x \ln x} \, dx & \quad \text{(c)} \int_0^{\sqrt{\pi}} x \sin(x^2) \, dx & \quad \text{(d)} \int_0^4 \frac{dx}{1 + \sqrt{x}} \\ \text{(e)} \int_2^3 x(x-2)^6 \, dx & \quad \text{(f)} \int_{-1}^3 \frac{x^2 + 1}{\sqrt{x^3 + 3x + 8}} \, dx & \quad \text{(g)} \int_0^3 \frac{x \, dx}{\sqrt{x+1}} & \quad \text{(h)} \int_0^1 x^3(x^2+1)^{1/3} \, dx \end{aligned}$$