

§5.5:  $u$ -SUBSTITUTION FOR DEFINITE INTEGRALS AND SYMMETRY

1.] Compute the following area:  $\int_0^2 2x(x^2 - 1)^3 dx$

2.] Compute the following area:  $\int_{-1}^2 x^2 e^{x^3+1} dx$

3.] Compute the following area:  $\int_1^2 \frac{1}{x^2 + 2x + 1} dx$

4.] Compute the following definite integral:  $\int_0^{\ln(4)} \frac{e^x}{3 + 2e^x} dx$

5.] Compute the following definite integral:  $\int_1^{e^2} \frac{\ln(x)}{x} dx$

6.] Evaluate the following definite integrals. Use symmetry where necessary.

a.)  $\int_{-2}^2 (x^9 - 3x^5 + 2x^2 - 10) dx$

b.)  $\int_{-\pi/2}^{\pi/2} (2 \cos(x) + \cos(x) \sin(x) - 3 \sin(x^5)) dx$