MATH 104 TUTORIAL 2

1- Evaluate the intgrals in the exercises

a) $\int_{-3}^{-1} \frac{y^5 - 2y}{y^3}\, dy$ b) $\int_{0}^{\pi/3} (\cos x + \sec x)^2\, dx$ c) $\int_{-4}^{4} |x|\, dx$

2- find the total area between the region and the x-axis.

a) $y = 3x^2 - 3, \quad -2 \le x \le 2$ b) $y = x^{1/3} - x, \quad -1 \le x \le 8$

3- Evaluate the indefinite integrals in exercises using the given substitutions to reduce the integrals to standart form.

a) $\int \frac{4x^3}{(x^4 + 1)^2}\, dx, \quad u = x^4 + 1$ **b)** $\int \left(1 - \cos\frac{t}{2}\right)^2 \sin\frac{t}{2}\, dt, \quad u = 1 - \cos\frac{t}{2}$

c) $\int \frac{1}{x^2} \cos^2\left(\frac{1}{x}\right) dx, \quad u = -\frac{1}{x}$

4- Evaluate the integrals in Exercises

a) $\int r^4 \left(7 - \frac{r^5}{10}\right)^3 dr$ **b)** $\int \frac{1}{\sqrt{t}} \cos(\sqrt{t} + 3)\, dt$ **c)** $\int \frac{x}{(x - 4)^3}\, dx$