MATH 104 TUTORIAL 8

1. Evaluate the integrals

a. $\int_{-2}^{2} \frac{dx}{4 + x^2}$

b. $\int_{0}^{2} \frac{dx}{8 + 2x^2}$

c. $\int \frac{dx}{\sqrt{4x^2 - 49}},$

d. $\int \frac{x^2}{4 + x^2}\, dx$

e. $\int \frac{x^3\, dx}{\sqrt{x^2 + 4}}$

f. $\int \frac{8\, dw}{w^2\sqrt{4 - w^2}}$

2. Express the integrand as a sum of partial fractions and evaluate the integrals.

a. $\int \frac{dx}{1 - x^2}$

b. $\int \frac{2x + 1}{x^2 - 7x + 12}\, dx$

c. $\int \frac{x + 3}{2x^3 - 8x}\, dx$

d. $\int_{0}^{1} \frac{dx}{(x + 1)(x^2 + 1)}$

e. $\int \frac{8x^2 + 8x + 2}{(4x^2 + 1)^2}\, dx$