

Worksheet 3

Spring 2016

MATH 222, Week 3: I.10,I.11,I.12

Name: _____

Problem 1. Compute $\int \frac{dx}{(x^2-4)(x^2+1)^2}$

Problem 2. (a) Compute $\int_2^4 \frac{1}{x^2} dx$

(b) Compute $\int_2^4 \frac{1}{x(x-h)} dx$ where h is any positive number.

(c) What happens as $h \rightarrow 0$ in the integral for part (b)? How is this related to part (a)?

Problem 3. Compute $\int \frac{1}{x^2+a^2} dx$

Problem 4. Use trig substitution to eliminate the root in $\sqrt{1-4x-2x^2}$

Problem 5. Compute $\int \frac{1}{\sqrt{2x-x^2}} dx$

Problem 6. Compute $\int t^3(3t^2-4)^{3/2} dt$