

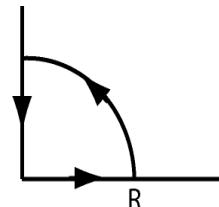
This is the last homework set to be turned in for grading.

1. Problem 4., page 257 of text.

2. Problem 8, page 257 of text.

3.* Evaluate, using residue theory.

$$\int_0^\infty \frac{dx}{(1+x^4)^2}.$$



(Hint: Use the contour shown.)

4. Problem 3, page 265 of text.

5. Evaluate, using residue theory with an indented contour,

$$\int_0^\infty \frac{\sin ax - a \sin x}{x(x^2 + 1)} dx.$$

Here a is a positive constant.

6.* Evaluate, using residue theory

$$\int_0^\infty \frac{\sin^2 x}{x^2} dx.$$

(Hint: $\sin^2 x = ?$)