

**Reading:**

Boas Chapter 2 sections 10-14 on complex numbers.

Boas Chapter 7 Sections 1 - 5 on Fourier series. The strength of this chapter is a slow, careful development of the techniques to find Fourier series. The key things we need, however, are found in section 5. I tend to favor a clear statement of Fourier's theorem and then lots of examples of computing Fourier series. I will follow this approach in class. If you'd like to read a version of this approach see the text by Potter and Goldberg, Chapter 7.

Boas Chapter 8 Section 6 (as before)

- (1) Boas pg 67 23
- (2) Boas pg 71 34 - Please do check your answer, but you don't have to use a computer as the book suggests.
- (3) For the linear operator

$$\mathcal{O}[u] := x(x-2)u'' - 2(x-1)u' + 2u$$

show that

$$u_1(x) = x^2 \text{ and } u_2(x) = x - 1$$

are independent solutions on some interval  $I$ . What is this interval  $I$ ?