

Principles of Mathematical Analysis Test

R. Dougherty-Bliss

May 6, 2017

1 The Real and Complex Number Systems

1.1 Theorem If a and b are real, then $(a, b) = a + bi$.

Proof

$$\begin{aligned} a + bi &= (a, 0) + (b, 0)(0, 1) \\ &= (a, 0) + (0, b) = (a, b). \end{aligned}$$

1.2 Notation If x_1, \dots, x_n are complex numbers, we write

$$x_1 + x_2 + \cdots + \sum_{j=1}^n x_j.$$