Chapter 1

All We Need Is Love.

1.1 Introduction

Theorem 1.1.1. *The following equality holds.*

$$\left(\int_0^\infty \frac{\sin x}{\sqrt{x}}dx\right)^2 = \sum_{k=0}^{\infty} \frac{(2k)!}{2^{2k}(k!)^2}\frac{1}{2k+1} = \prod_{k=1}^{\infty}\frac{4k^2}{4k^2-1} = \frac{\pi}{2}.$$

Proof. Write a clear proof. □ □

Remark 1.1.2. Some comments. ◁