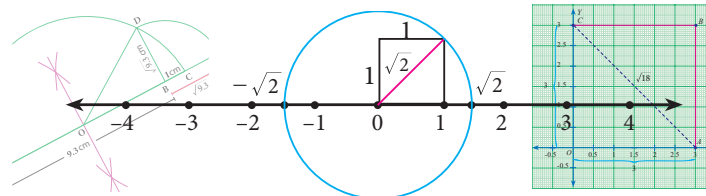


2



REAL NUMBERS

“When I consider what people generally want in calculating, I found that it always is a number”

- Al-Khwarizmi



Al-Khwarizmi
(A D (CE) 780 - 850)

Al-Khwarizmi, a Persian scholar, is credited with identification of surds as something noticeable in mathematics.

He referred to the irrational numbers

as ‘inaudible’, which was later translated to the Latin word ‘surdus’ (meaning ‘deaf’ or ‘mute’). In mathematics, a surd came to mean a root (radical) that cannot be expressed (spoken) as a rational number.



Learning Outcomes



- To know that there exists infinitely many rational numbers between two given rational numbers.
- To represent rational and irrational numbers on number line and express them in decimal form.
- To visualize the real numbers on the number line.
- To identify surds.
- To carry out basic operations of addition, subtraction, multiplication and division using surds.
- To rationalise denominators of surds.
- To understand the scientific notation.

2.1 Introduction

Numbers, numbers, everywhere!

- Do you have a phone at home? How many digits does its dial have?
- What is the Pin code of your locality? How is it useful?
- When you park a vehicle, do you get a ‘token’? What is its purpose?
- Have you handled 24 ‘carat’ gold? How do you decide its purity?
- How high is the ‘power’ of your spectacles?