Decimal Numbers

Topic 1: Introduction to Decimal Numbers

Class Notes

What are Decimal Numbers?

Decimals are just a way to show parts of a whole. The number before the dot is the whole part, and the number after the dot tells us the little pieces. For example, 0.12 and 5.32 are decimal numbers.

Place Value System:

In our decimal system, each position represents a power of 10:

Hundreds	Tens	Units	Decimal Point	Tenths	Hundredths	Thousandths
10^2	10^1	10^0	.	10^{-1}	10^{-2}	10^{-3}
100	10	1	.	0.1	0.01	0.001

Example: The number 47.635 can be broken down as:

- $4 \times 10 = 40$ (tens place)
- $7 \times 1 = 7$ (units place)
- $6 \times 0.1 = 0.6$ (tenths place)
- $3 \times 0.01 = 0.03$ (hundredths place)
- $5 \times 0.001 = 0.005$ (thousandths place)

So: $47.635 = 40 + 7 + 0.6 + 0.03 + 0.005$

Exercise 1

Part A: Write the place value of the underlined digit:

1. $45.\underline{7}23$ →
2. $0.0\underline{4}6$ →
3. $123.\underline{8}45$ →

Part B: Write these numbers in expanded form:

1. 23.47 →
2. 0.685 →
3. 145.023 →

Part C: Write these in standard decimal form:

1. $3 + 0.2 + 0.05 + 0.007$ →
2. $20 + 4 + 0.3 + 0.09$ →
3. $5 + 0.6 + 0.04$ →