Set of numbers

Several sets are used so often, they are given special symbols.

N = the set of *natural numbers* or positive integers

N ={0,1,2,3,…} الاعداد الموجبة الصحيحة

Z = the set of all integers: . . . ,−2,−1, 0, 1, 2, . . .

Z =N∪{…,-2,-1}

الاعداد الكسرية

Q = the set of rational numbers

Q =Z∪{…,-1/3,-1/2,1/2,1/3,…,2/3,2/5,…}

Where Q ={ a/b : a , b ∈ Z, b≠0}

R = the set of real numbers حقيقية

R =Q∪{…,-π,-$\sqrt{2}$,$\sqrt{2}$,π,…}

C = the set of complex numbers الاعداد العقدية

$\mathbb{C} = \mathbb{R} \cup \{i, 1+i, 1-i, \sqrt{2}+\pi i, \ldots\}$

Where C={ x + iy ; x , y ∈R; i = $\sqrt{-1}$}

Observe that **N** ⊂ **Z** ⊂ **Q** ⊂ **R** ⊂ **C**.

Theorem 1:

For any set A, B, C:

1- ∅ ⊂ A ⊂ U.

2- A ⊂ A.

3- If A ⊂ B and B ⊂ C, then A ⊂ C.

4- A = B if and only if A ⊂ B and B ⊂ A.