

COMPLEX NUMBERS

Number Types -

- 1) Real Numbers
- 2) Natural numbers - $1, 2, \dots$
- 3) Whole numbers - $\{0\} \cup \mathbb{N}$
- 4) Integers - \mathbb{Z}
- 5) Rational numbers - $p/q, p, q \in \mathbb{Z}, q \neq 0$
- 6) Irrational numbers

Complex Numbers

$\sqrt{-1} = i$ Real part
 \uparrow
 General form $\rightarrow a + ib \rightarrow$ Imaginary part

$$i^2 = -1, \quad i^3 = -i, \quad i^4 = 1$$

$i^{1234321(27)}$ \rightarrow check only for last 2 digits

$123432100 + 27$ \rightarrow to be checked

\hookrightarrow divisible by 4 always $\therefore i^3 = -i$

eg - $(1+i)^{40} \rightarrow$ compute

$$[(1+i)^2]^{20} = [1+i^2+2i]^{20} = [2i]^{20}$$

○ SQUARE ROOT OF A COMPLEX NO -
 (METHOD FOR JEE) -