

SKILL #01

CODE: NS.1

Understanding Real and Complex Numbers

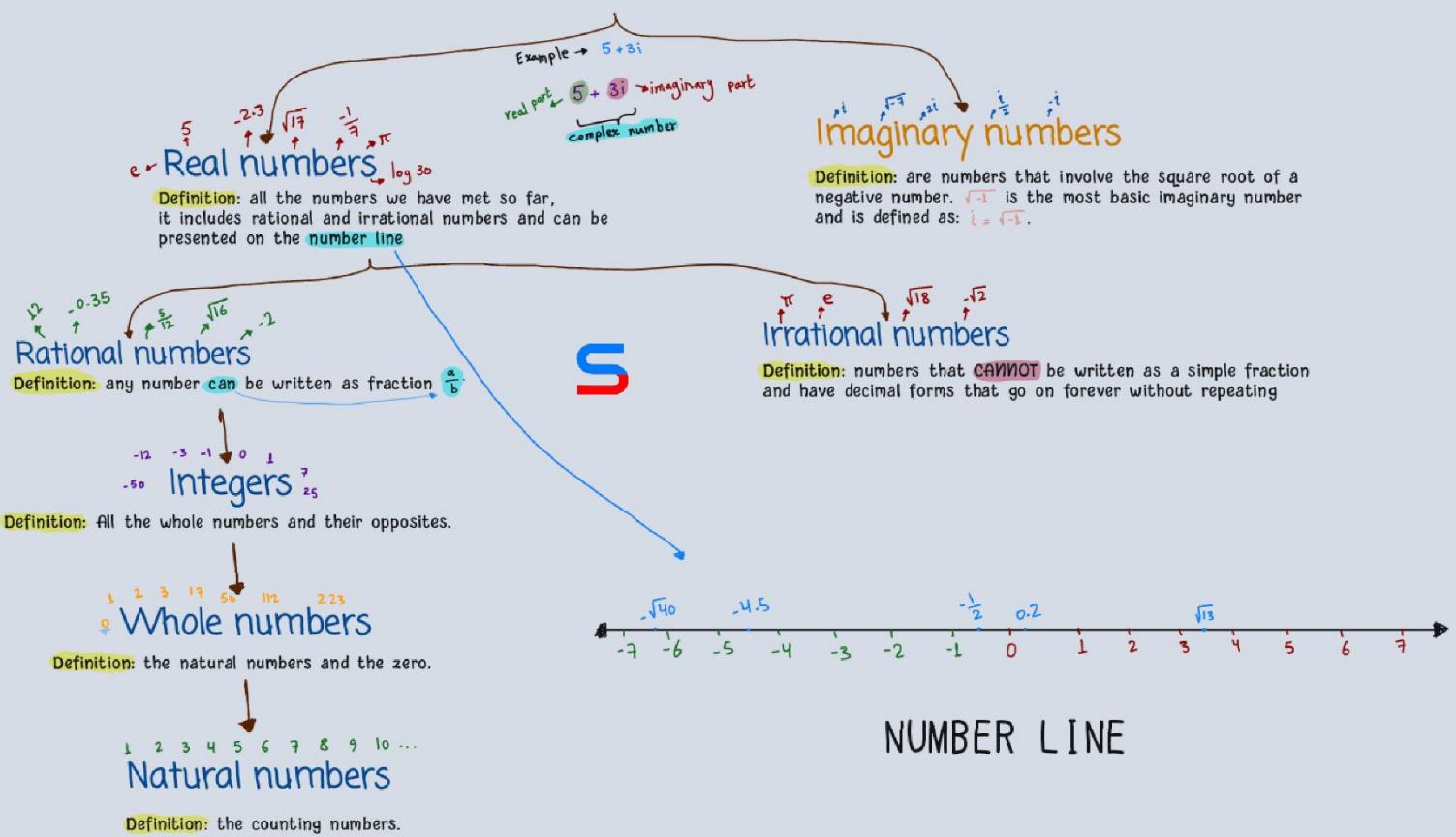
💡 Core Concept

All the numbers we use belong to different groups, like a big family with many branches.

Understanding how these groups work helps us solve problems

Complex numbers

Definition: numbers that can be written in the form $a+bi$ where a and b are real numbers and i is the imaginary unit



Did You Know?

- ❖ All integers are rational numbers, but not all rational numbers are integers. {same logic for all}
- ❖ The square root of -1 is not a real number—it's imaginary and represented by i .
- ❖ Complex numbers are made of both real and imaginary parts (like $3 + 2i$).

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Understanding Real and Complex Numbers

🎓 Why It Matters

Understanding number types helps in:

- ❖ Algebra (You'll use rational and irrational roots)
- ❖ Physics (You'll see complex numbers in circuits)
- ❖ Computer science (Binary and number types)
- ❖ Engineering (Imaginary numbers are very real there!)

💡 Real-Life Connection

Rational: Fractions in recipes or money

Irrational: π in circle formulas

Complex: Electric current in engineering

🎮 NUMBER DETECTIVE CHALLENGE

Can you identify these numbers?

- -15 --> integer, rational, real
- 3.75
- $\sqrt{-9}$
- π
- 0
- $\sqrt{16}$
- $2 - 5i$
- 2^{-2}
- $\sqrt{7}$
- $3i$

<https://sanwaralkmali.github.io/>



Video Tutorial -->



Extra worksheet -->



Games -->



⚠ Common Mistakes to Avoid

- ✖ Thinking that irrational means imaginary.
- ✖ Believing decimals like 0.5 are not rational.
- ✖ Saying "0 is not a number" or "0 is not whole."
- ✖ Assuming all square roots are irrational.