

Cálculo 1

# Aula 1

A1: Números

Jeiverson Christian

# Números Reais R



# Números Reais $\mathbb{R}$

$\mathbb{Q}$

Racionais

$\mathbb{I}$

Irracionais

# Números Reais $\mathbb{R}$

$\mathbb{Q}$

Racionais

$\mathbb{Z}$

Inteiros

$\mathbb{I}$

Irracionais

# Números Reais $\mathbb{R}$

$\mathbb{Q}$

Racionais

$\mathbb{Z}$

Inteiros

$\mathbb{N}$

Naturais

$\mathbb{I}$

Irracionais





1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, ....



**1**, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, ....

**0**, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, ....



**Z**

**Inteiros**

**0**

**.**

**Z**

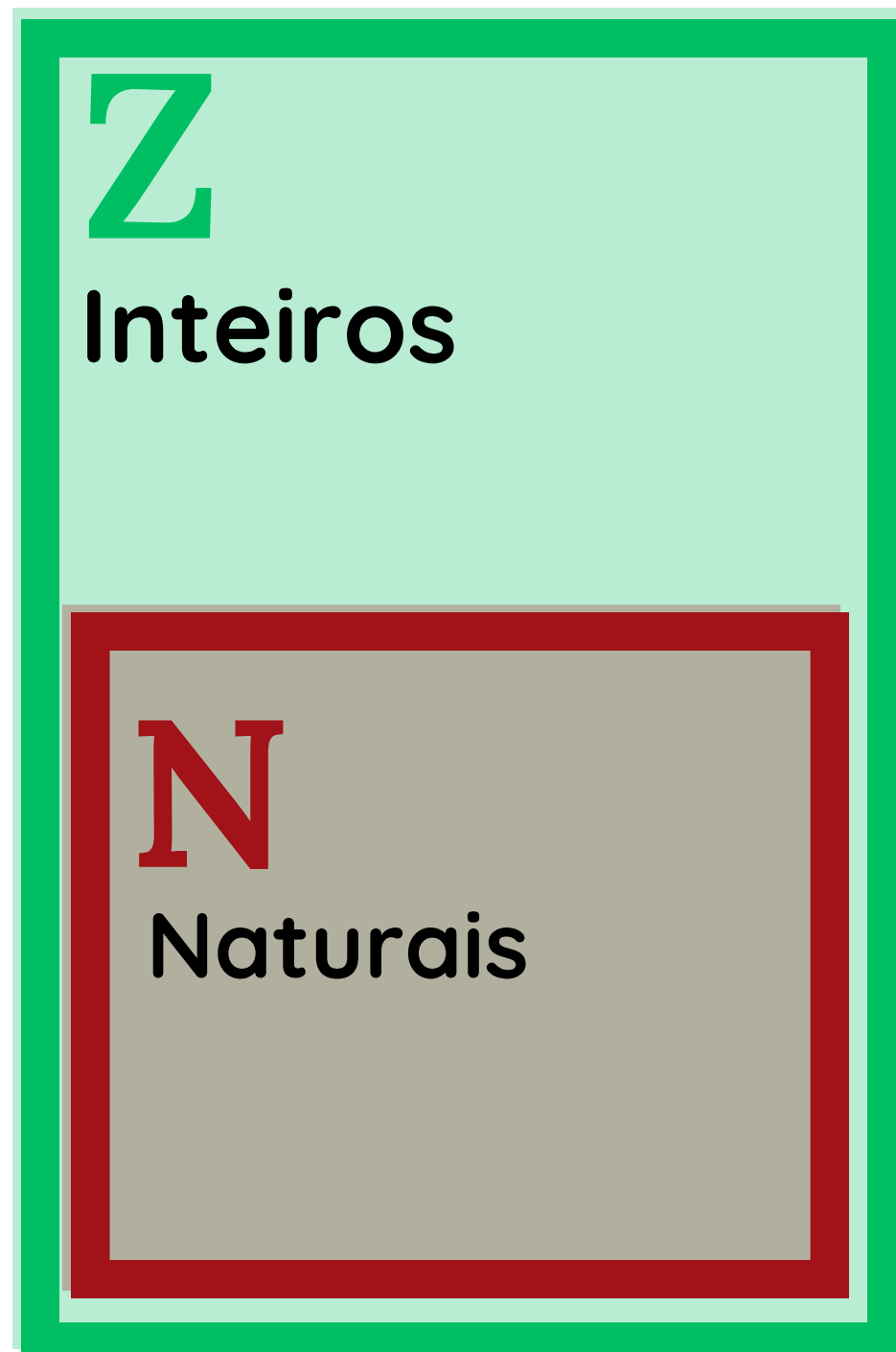
**Inteiros**

**0, +1, +2, +3, +4, ....**

**Z**

**Inteiros**

... , -4, -3, -2, -1 , **0** , +1, +2, +3, +4, ....



... , -4, -3, -2, -1, 0, +1, +2, +3, +4, ...

Q

**Racionais**

Q

Racionais



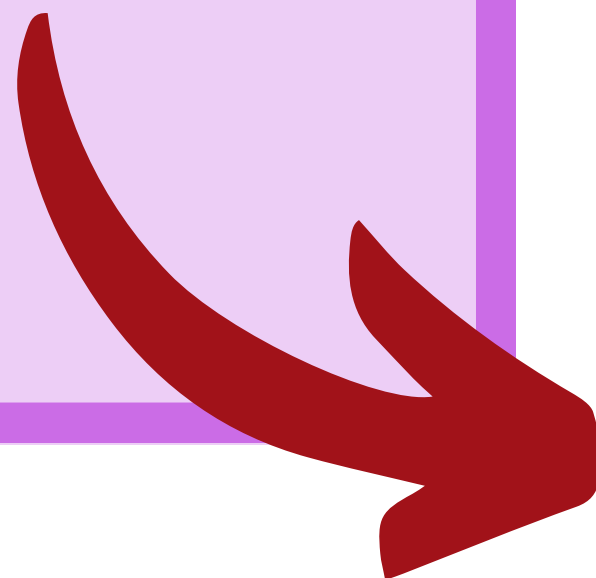
Razão

Q

Racionais



Razão



Divisão

Q

Racionais

Divisão

m



n



Q

Racionais

Divisão

m

n

Exemplos:

3

2

Q

Racionais

Divisão

m

n

Exemplos:

$$\frac{3}{2} = 1,5$$

Q

Racionais

Divisão

$$\frac{m}{n}$$

Exemplos:

$$\frac{-1}{4} = -0,25 \quad \frac{3}{2} = 1,5$$

Q

Racionais

Divisão

m

n

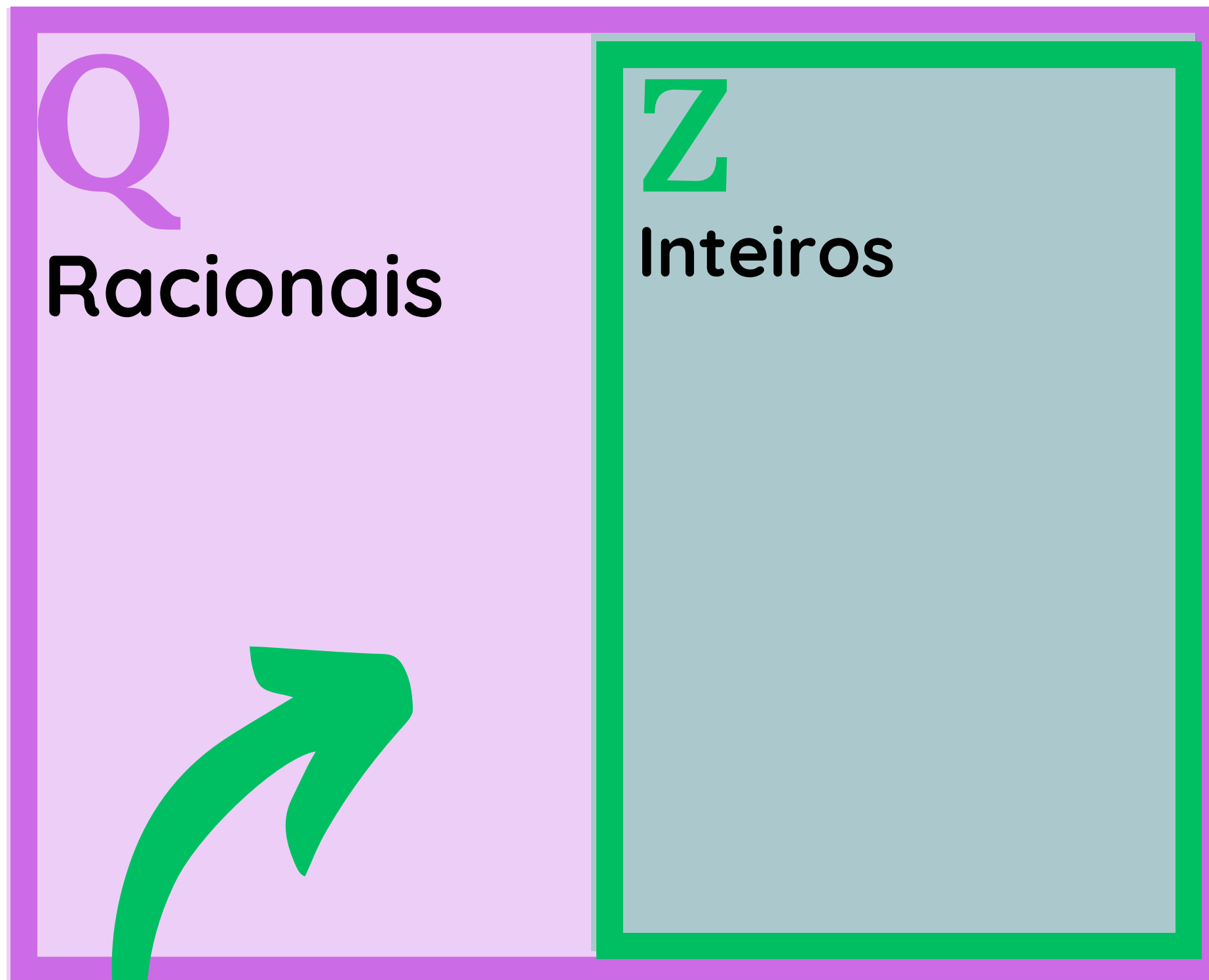
Exemplos:

$$\frac{-9}{1} = -9$$

$$\frac{0}{5} = 0$$

$$\frac{8}{2} = 4$$

$$\frac{-1}{4} = -0,25$$



# Divisão

$$\frac{m}{n}$$

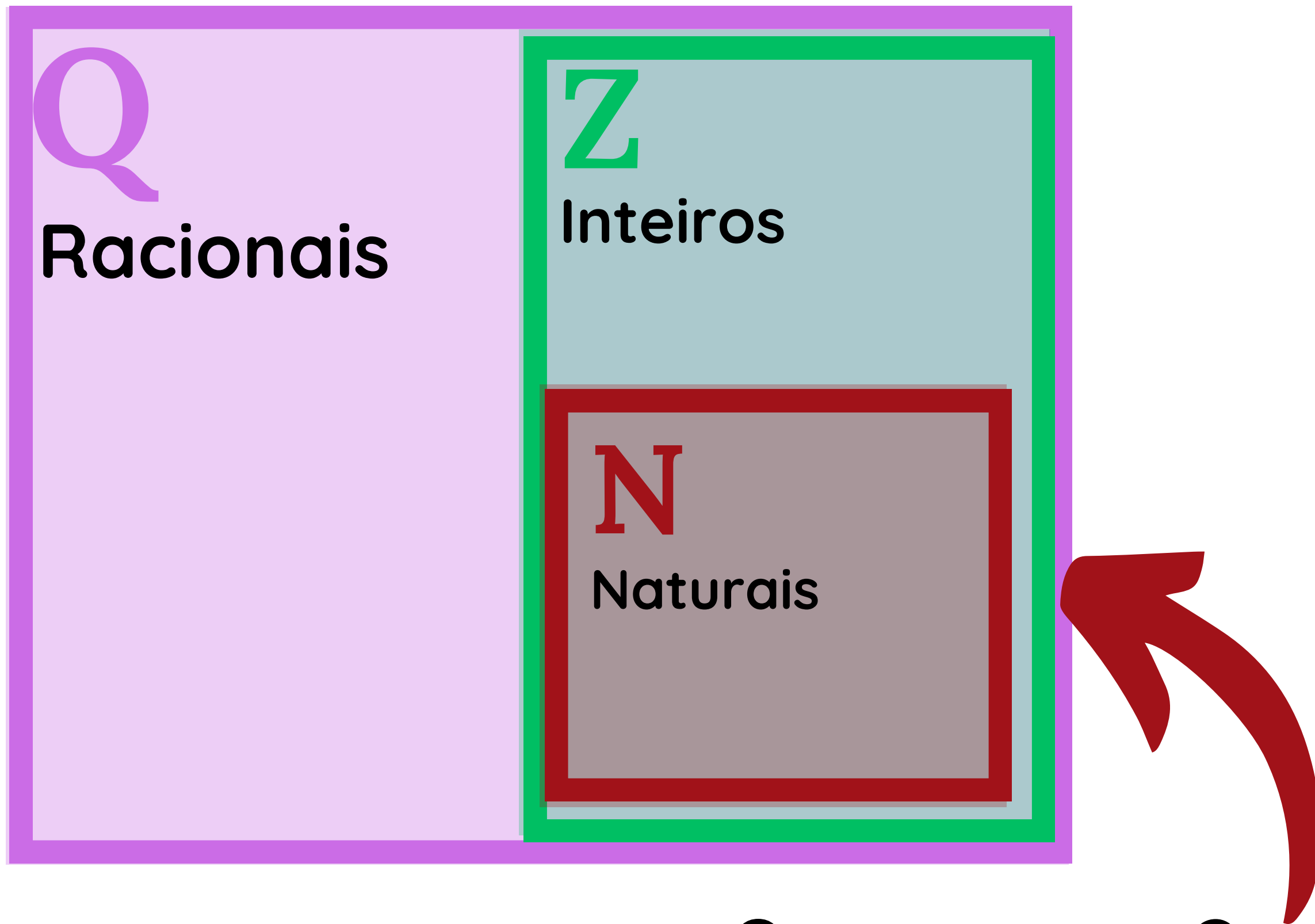
Exemplos:

$$\frac{-9}{1} = -9$$

$$\frac{0}{5} = 0$$

$$\frac{8}{2} = 4$$

$$\frac{-1}{4} = -0,25$$



# Divisão

$$\frac{m}{n}$$

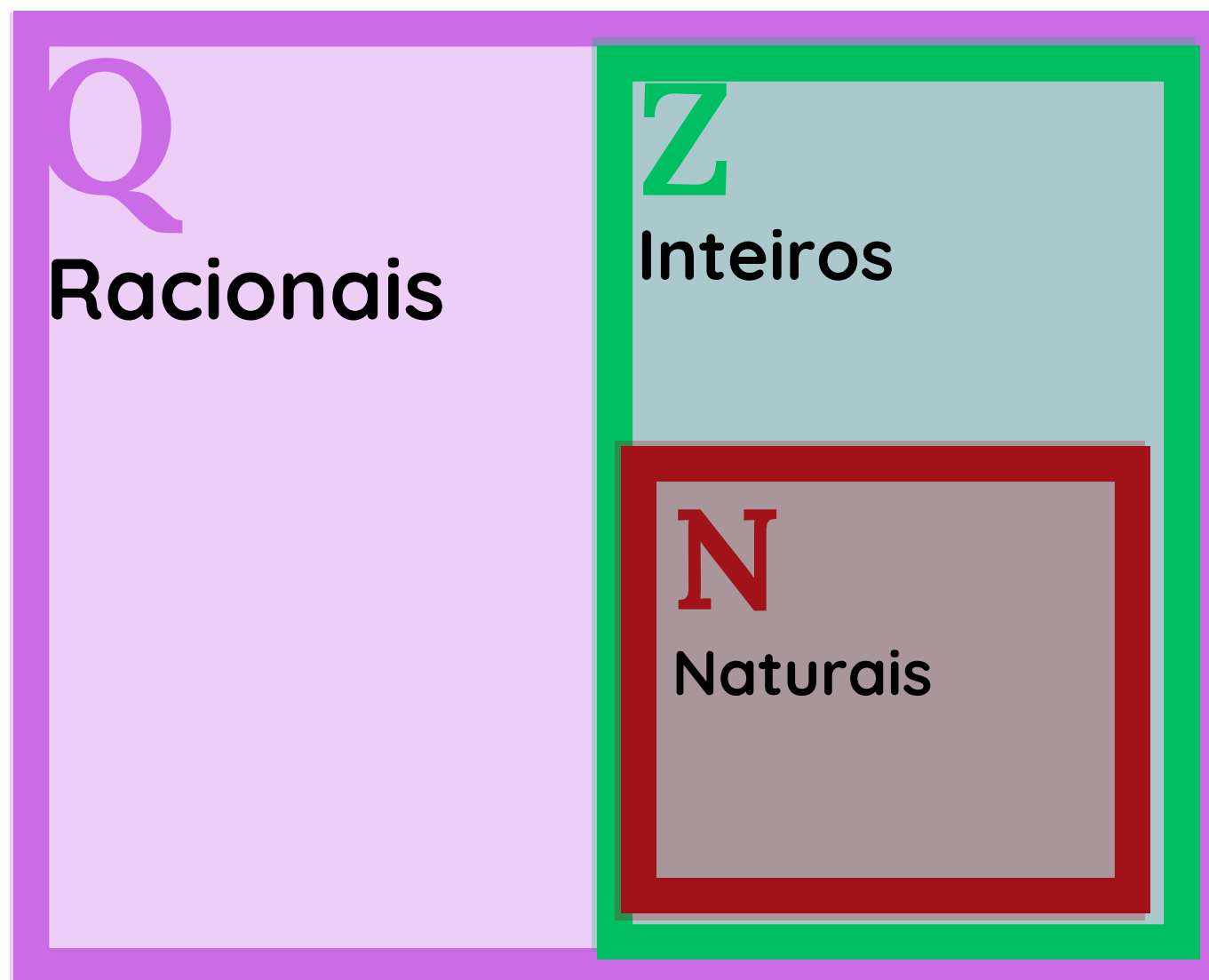
Exemplos:

$$\frac{-9}{1} = -9$$

$$\frac{0}{5} = 0$$

$$\frac{8}{2} = 4$$

$$\frac{-1}{4} = -0,25$$



# Observação

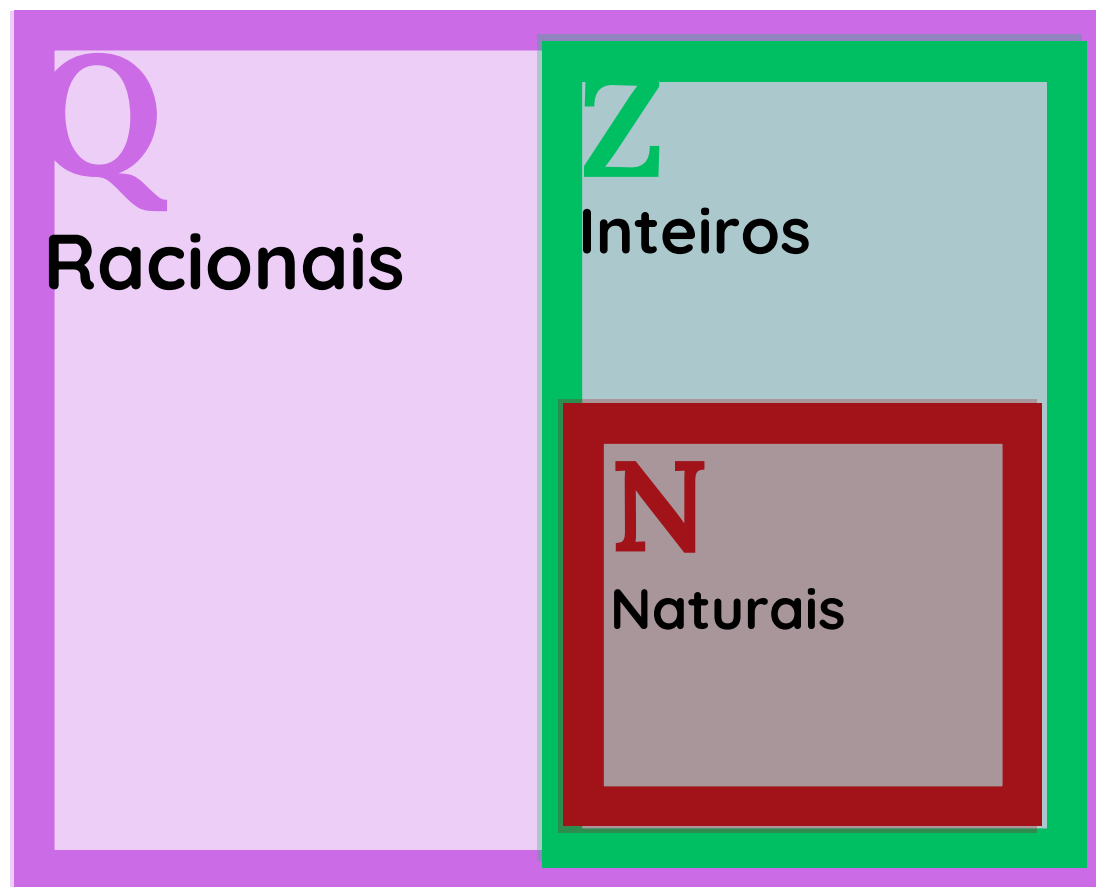
$$\frac{m}{n}$$

$$m = 0 \text{ ok}$$

$$\frac{0}{5} = 0$$

$$n = 0 \text{ X}$$

$$\frac{5}{0} ?$$

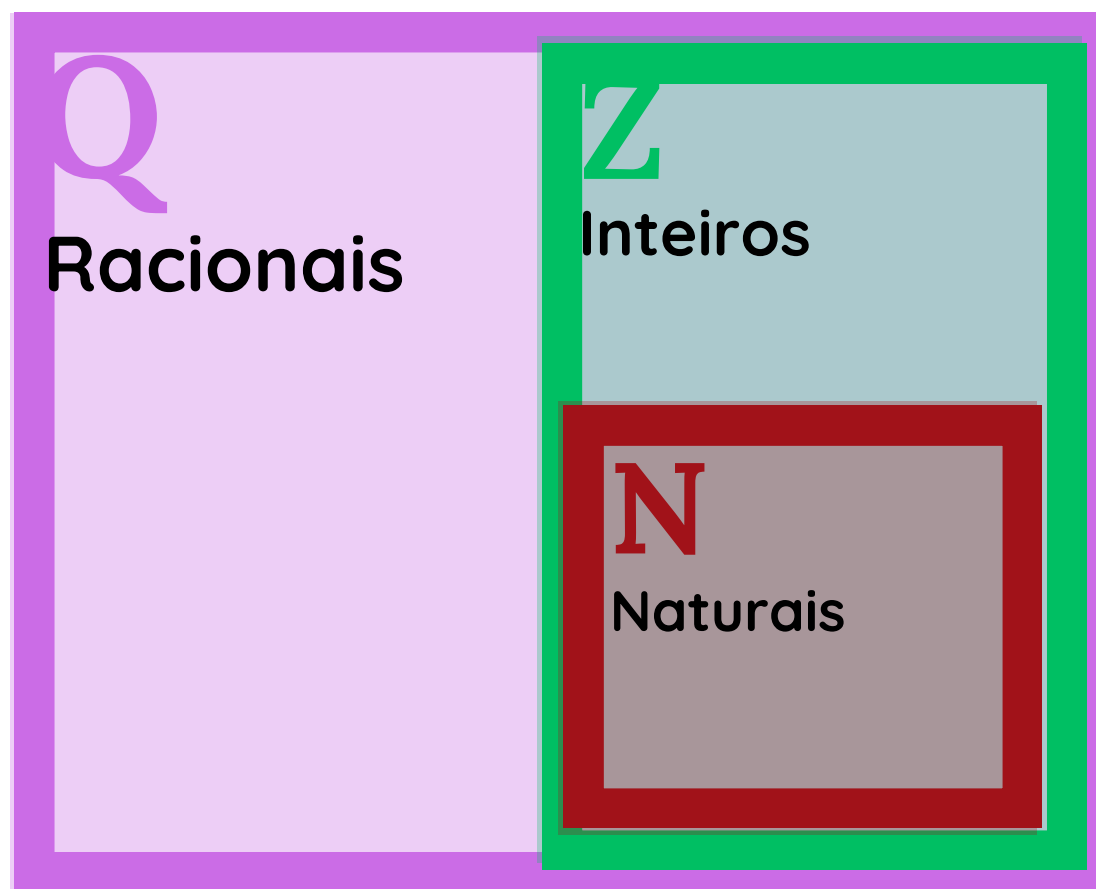


# Observação

Racionais sempre têm  
díizima periódica.

$$\frac{1}{2} = 0,5$$

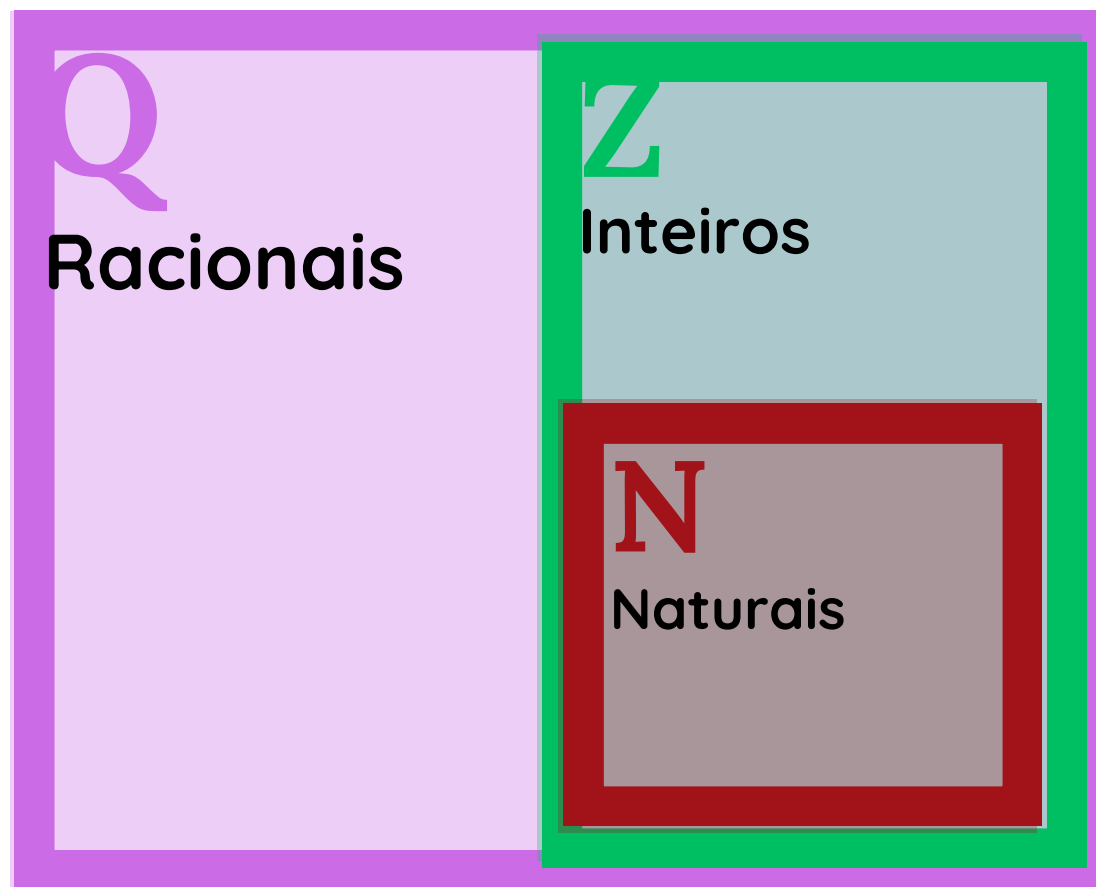




# Observação

Racionais sempre têm  
díizima periódica.

$$\frac{1}{2} = 0,5\underbrace{0000}_{\text{purple}}\dots$$

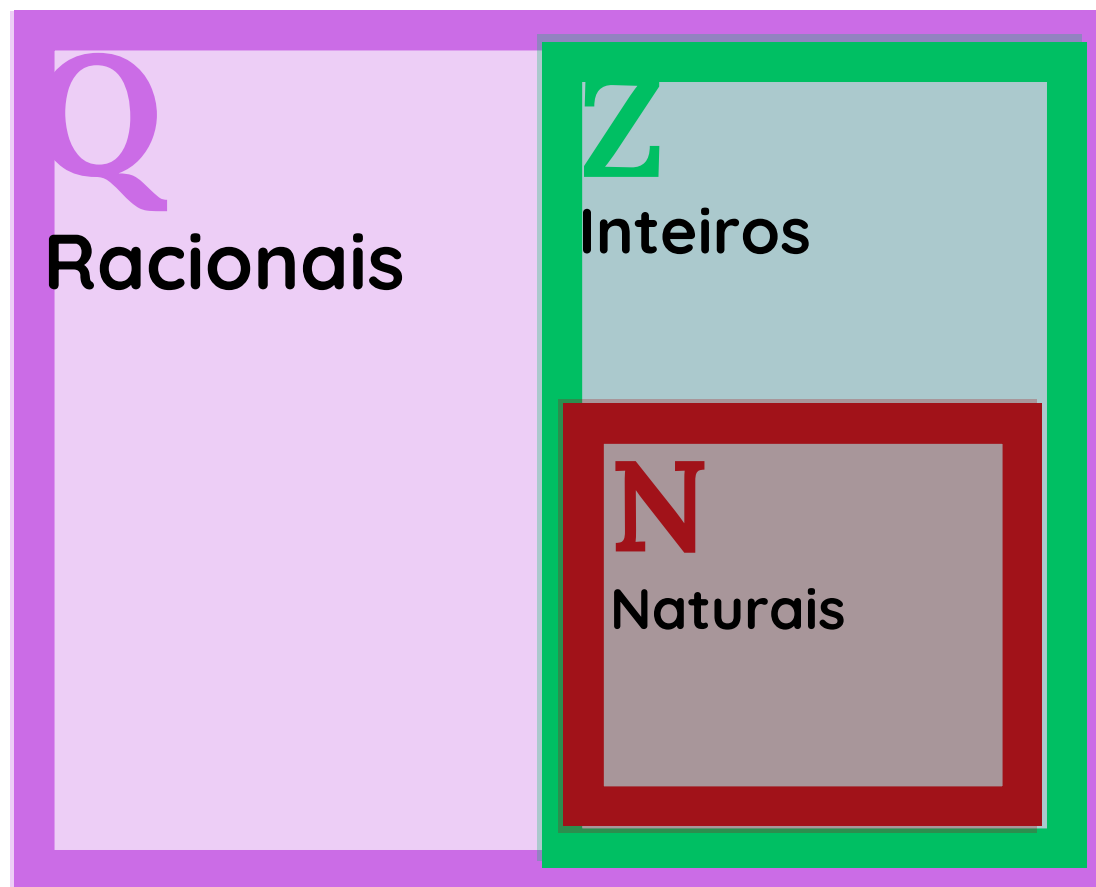


# Observação

Racionais sempre têm  
díizima periódica.

$$\frac{1}{2} = 0,5\underline{00000}\dots$$

$$\frac{2}{3} = 0,\underline{666666}\dots$$



# Observação

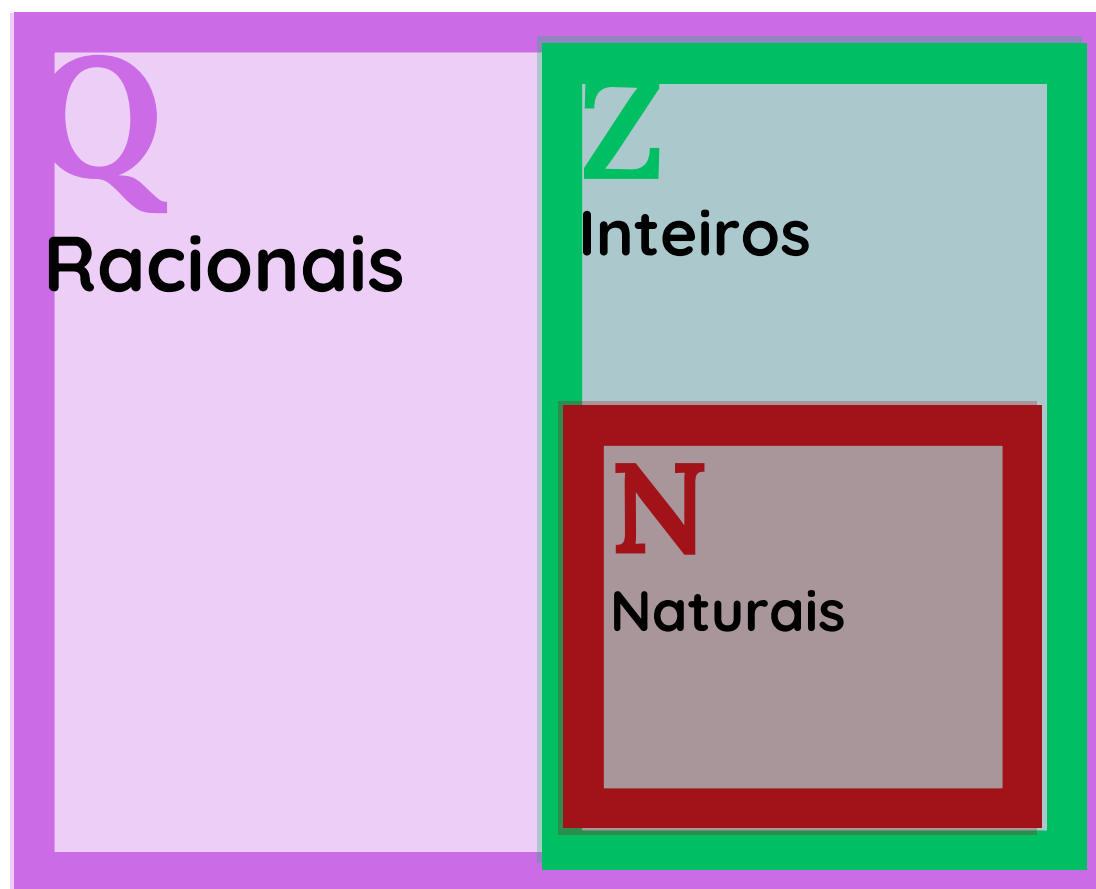
Racionais sempre têm  
díizima periódica.

$$\frac{1}{2} = 0,5\underline{00000}\dots$$

$$\frac{2}{3} = 0,\underline{666666}\dots$$

$$\frac{157}{495} = 0,3\underline{171717}\dots$$

$$\frac{9}{7} = 1,\underline{285714285714}\dots$$



# Observação

Racionais sempre têm  
díizima periódica.

$$\frac{1}{2} = 0,5\underline{00000}\dots$$

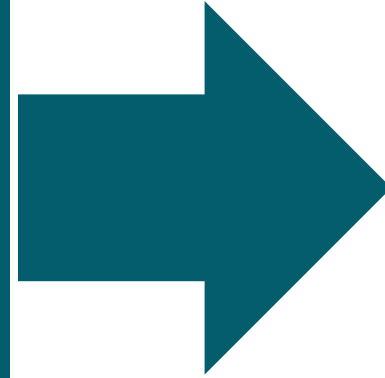
$$\frac{2}{3} = 0,\underline{666666}\dots$$

$$\frac{157}{495} = 0,3\underline{171717}\dots \quad \frac{6}{2} = 3,\underline{000000}\dots$$

$$\frac{9}{7} = 1,\underline{285714285714}\dots$$

**I**

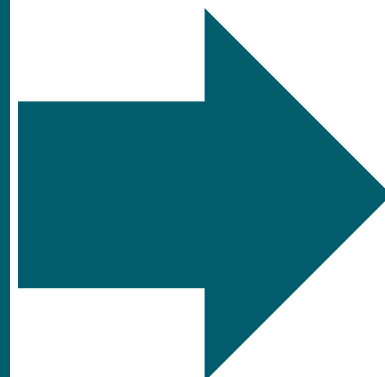
**Irracionais**



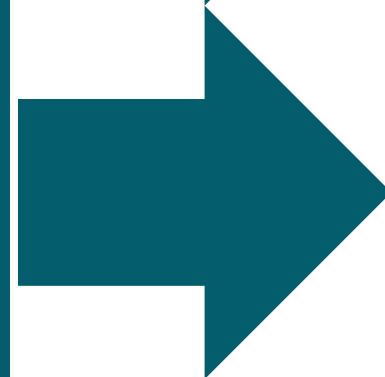
**Não racional.**

# I

Irracionais



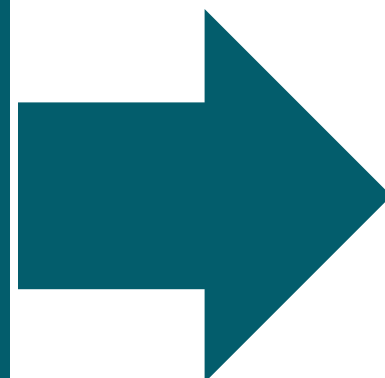
Não racional.



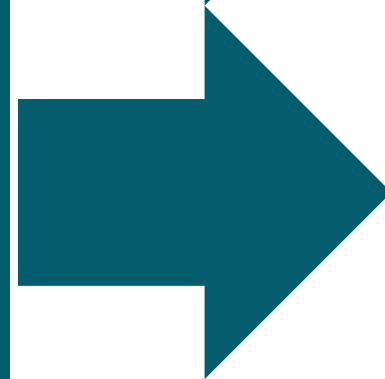
Não pode ser a divisão de  
dois inteiros.

# I

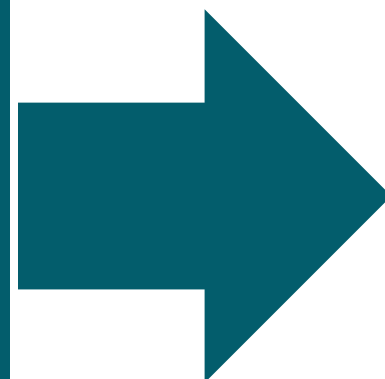
## Irracionais



Não racional.



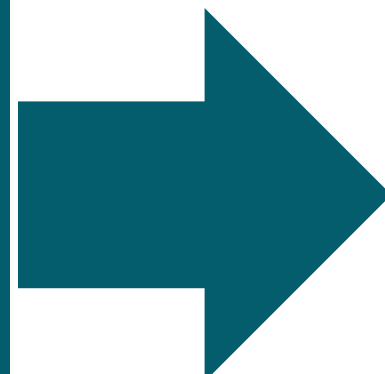
Não pode ser a divisão de dois inteiros.



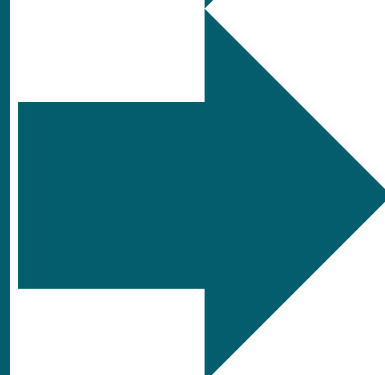
Tem dízima não periódica.

# I

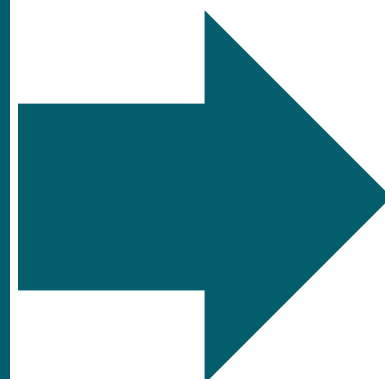
## Irracionais



Não racional.



Não pode ser a divisão de dois inteiros.



Tem dízima não periódica.

### Exemplos:

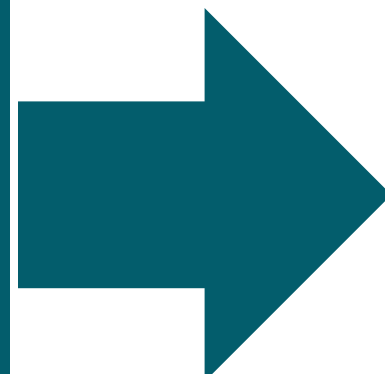
$$\sqrt{2} = 1,414213562373095\dots$$

$$\pi = 3,141592653589793\dots$$

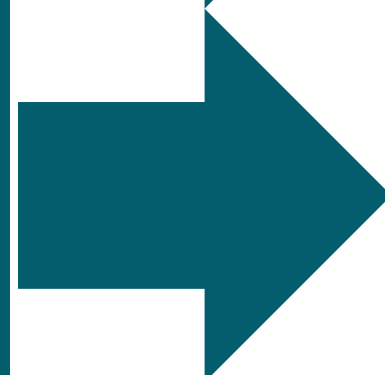


# I

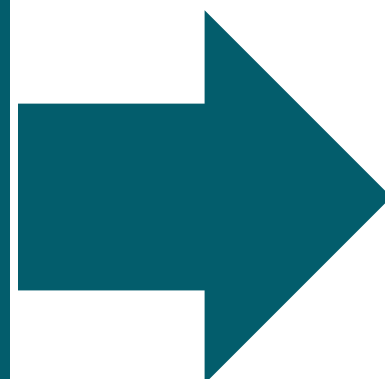
## Irracionais



Não racional.



Não pode ser a divisão de dois inteiros.



Tem dízima não periódica.

### Exemplos:

$$\sqrt{2} = 1,414213562373095\dots$$

$$\pi = 3,141592653589793\dots$$

$$\log(2) = 0,3010299956639\dots$$

$$e = 2,718281828459045\dots$$

# Observação

O verdadeiro valor de Pi.

$\pi$  = 3,14159 26535 89793 23846 26433 83279 50288 41971 69399  
37510 58209 74944 59230 78164 06286 20899 86280 34825  
34211 70679 82148 08651 32823 06647 09384 46095 50582  
23172 53594 08128 48111 74502 84102 70193 85211 05559  
64462 29489 54930 38196 44288 10975 66593 34461 ....

$\pi$   $\approx$  3,14



*The End*