

Unit 1. Day 1 Notes
Number Sets & Closure



PART I: NUMBER SYSTEMS

Natural (or Counting) Numbers: $1, 2, 3, 4, 5, \dots, 10,000$

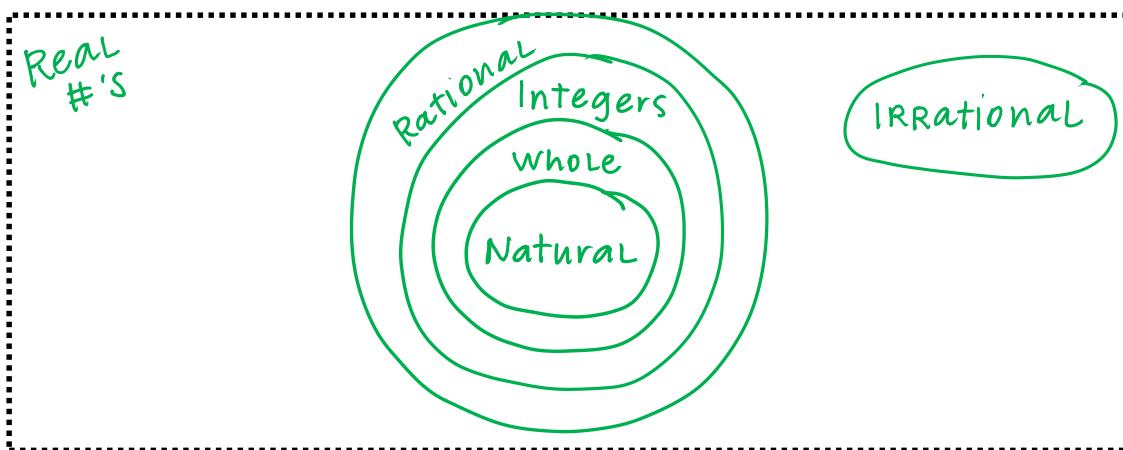
Whole Numbers: $0, 1, 2, 3, 4, 5, \dots, 1,714, \dots$ (add a "hole")

Integers: $\dots -3, -2, -1, 0, 1, 2, 3 \dots$ ("inte" debt)

Rational Numbers: $-\frac{1}{2}, 0.5, 3, \frac{7}{4}, 2^3/7$ (fractions w/ whole # on T & B)

Irrational Numbers: $\pi, -\sqrt{5}, \frac{\sqrt{2}}{1}$ (fractions, w/out whole # on T OR B)

And a picture to sum it all up!



Classify the following numbers by placing a check in the column to which groups they belong.

Number	Counting Number	Whole Number	Integer	Rational Number	Irrational Number
5	✓	✓	✓	✓	
0.4				✓	
$\sqrt{64} = 8$	✓	✓	✓	✓	
$-2\frac{2}{3}$				✓	
$\sqrt{27}$					✓
0		✓	✓	✓	

Match the sets of numbers.

- c 1 Whole Numbers
- e 2 Integers
- d 3 Positive Integers
- a 4 Negative Integers
- b 5 Rational Numbers

- a. -1, -2, -3, -4, ...
- b. $\frac{1}{2}, 0.6, -\frac{8}{3}, 5 \dots$
- c. 0, 1, 2, 3, 4, ...
- d. 1, 2, 3, 4, ...
- e. -4, -3, -2, -1, 0, 1, 2, 3, 4, ...

You try! (1-3 are sample answers)

1. Name a # that is an integer but not whole. -1
2. Name a # that is rational but not counting. $\frac{1}{2}$
3. Name a # that is counting but not whole. does not exist
4. TRUE or FALSE: All whole #s are integers.
5. TRUE or FALSE: All integers are whole #s.
6. TRUE or FALSE: Every real # is rational.

$$-2 \div 3 = -\frac{2}{3}$$

$$2 \div 3 = \frac{2}{3}$$

How about these?!

Classify the following numbers by placing a check in the column to which groups they belong.

Number	Counting Number	Whole Number	Integer	Rational Number	Irrational Number
5.05				✓	
-11			✓	✓	
$\sqrt{3}$					✓
$\frac{2}{3}$				✓	
33	✓	✓	✓	✓	
$\sqrt{0}$		✓	✓	✓	