Circle all the counting or natural numbers below.

- 4  0.25  \( \frac{2}{3} \)  78  \( \frac{4}{2} \)  - 23

DID YOU CIRCLE \( \frac{4}{2} \)? THIS IS A COUNTING NUMBER BECAUSE IT CAN BE SIMPLIFIED TO 2.

THE NEXT SET IS CALLED WHOLE NUMBERS. THIS INCLUDES ALL THE COUNTING NUMBERS AND 0.
0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, ...

Circle all the whole numbers below.

0.89  0  \( \frac{4}{8} \)  - 56  96  - 24  \( \frac{7}{1} \)

DID YOU CIRCLE \( \frac{7}{1} \)? IT CAN BE SIMPLIFIED TO 7.

THEN COMES THE INTEGERS WHICH INCLUDES ZERO, ALL THE COUNTING NUMBERS, AND THE NEGATIVES OF ALL THE COUNTING NUMBERS.
..., -6, -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, ...

Circle all the integers below.

- 63  \( \frac{3}{9} \)  0  - 925  1  400  0.08

0.41  157  4.28  \( \frac{6}{13} \)  - 0.6  - 72
CLASSIFYING NUMBERS CONTINUED

HAVE YOU NOTICED THAT THE SETS ARE INCLUDING MORE AND MORE NUMBERS AND THAT EACH NEW SET CONTAINS THE PREVIOUS SET WITHIN IT? THIS GRAPH MIGHT HELP YOU BETTER UNDERSTAND THE SETS.

AND FINALLY, WE HAVE THE OTHER RATIONAL NUMBERS. THIS SET INCLUDES ALL THE OTHER SETS MENTIONED BEFORE AND FRACTIONS THAT ARE MADE UP OF TWO INTEGERS. DON'T FORGET, ZERO CAN NEVER BE IN THE DENOMINATOR (ON THE BOTTOM).

THESE OTHER RATIONAL NUMBERS CAN ALSO BE WRITTEN AS DECIMALS, BUT THEY ONLY INCLUDE ONES THAT TERMINATE (END), OR REPEAT.

EXAMPLES OF DECIMALS THAT TERMINATE OR END:
2.1 0.5 0.375 0.24

EXAMPLES OF DECIMALS THAT REPEAT:
0.3333... 0.2666... 0.142857142857...

Circle all the rational numbers below.

456 - 1,823 9 238 - 925 - 7 1
26 38 2

0.333... 0.238 - 0.56 0.1212...

THOSE ARE ALL THE RATIONAL NUMBERS WHICH LEAVES US WITH IRRATIONAL NUMBERS. IRRATIONAL NUMBERS ARE DECIMALS THAT DO NOT END OR REPEAT. IN OTHER WORDS, THEY HAVE NO PATTERN AND NEVER STOP. THEY ALSO CANNOT BE WRITTEN AS A FRACTION USING TWO INTEGERS.

THE BEST WAY TO SEE IRRATIONAL NUMBERS IS TO USE A CALCULATOR. WHAT IS THE SQUARE ROOT OF 4 (√4)? I HOPE YOU GOT 2, WHICH IS A RATIONAL NUMBER. NOW TRY THE SQUARE ROOT OF 3 (√3). YOU SHOULD GET SOMETHING LIKE 1.73205080756887... AS YOU CAN SEE IT NEVER STOPS AND DOES NOT REPEAT OR HAVE A PATTERN. IT IS IRRATIONAL.

EXAMPLES OF IRRATIONAL NUMBERS:
√5 √2 √20 π

NOW YOU KNOW REAL NUMBERS.