

1-19-2016

1/2

# NUMBER THEORY

COUNTING NUMBERS: 1, 2, 3, 4, 5, ...  $\rightarrow \infty$

A LARGE NAMED NUMBER:

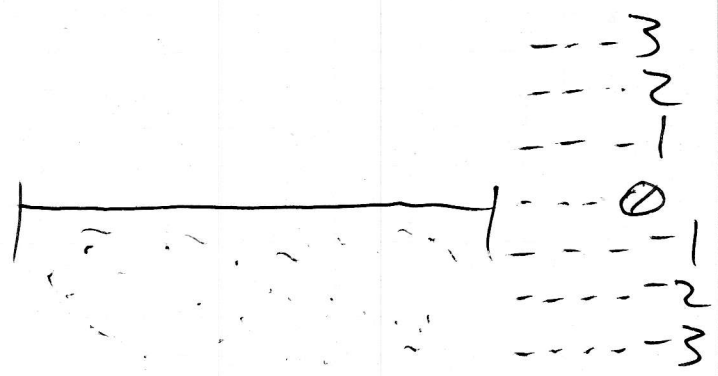
1,000,000, ..., 000  
100 ZEROS

GOOGOL

WHOLE NUMBERS: 0, 1, 2, 3, 4, 5, ...  $\rightarrow \infty$

NEGATIVE NUMBERS: -1, -2, -3, -4, -5, ...  $\rightarrow -\infty$

## SAND ANALOGY



SCOOPS OF SAND  
(WHOLE NUMBERS)

HOLE IN SAND  
(NEGATIVE #S)

PILE OF SAND  $\rightarrow$  POSITIVE NUMBER  
HOLES  $\rightarrow$  NEGATIVE #

- OPERATIONS
- ADD SCOOPS  $\rightarrow$  ADD POSITIVE #
  - TAKE AWAY A SCOOP  $\rightarrow$  SUBTRACT A POSITIVE #
  - ADD A HOLE  $\rightarrow$  ADD A NEGATIVE #
  - TAKE AWAY A HOLE  $\rightarrow$  SUBTRACT A NEGATIVE #

# BINARY OPERATIONS

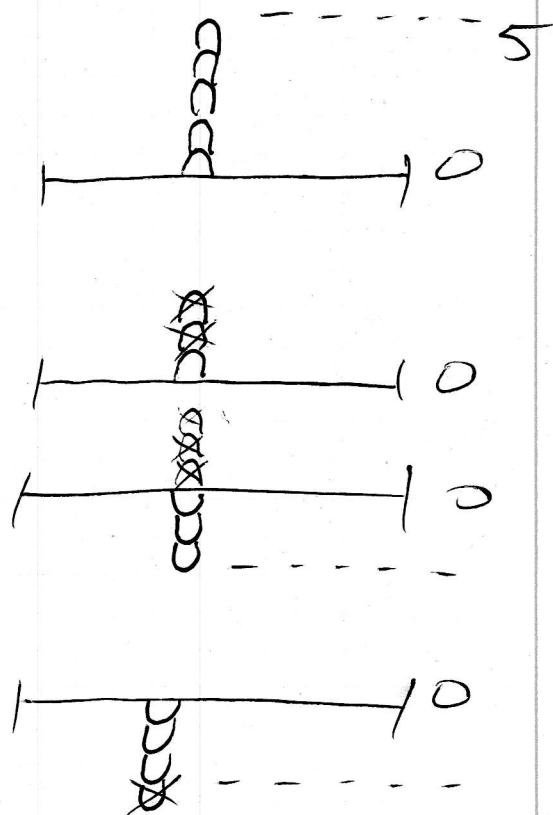
$$\begin{array}{r}
 \uparrow \\
 \text{SEGN} \\
 +3 \quad + \quad +2 = +5 \\
 \uparrow \\
 \text{ADDITION} \\
 (3 + 2 = 5)
 \end{array}$$

$$+3 - +2 = +1$$

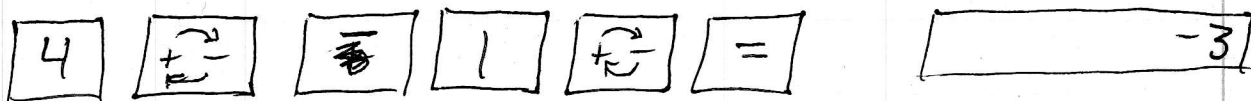
$$+3 - +6 = -3$$

$$-4 - -1 = -3$$

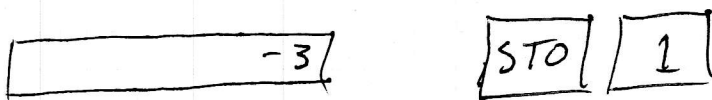
$$-4 + +1 = -3$$



## ON THE CALCULATOR



## STORING IN MEMORY



## RECALLING FROM MEMORY

