

NATURAL NUMBERS \mathbb{N} $\{1, 2, 3, \dots\}$

WHOLE NUMBERS $\{0, \mathbb{N}\}$

INTEGERS \mathbb{Z} $\{-\mathbb{N}, 0, \mathbb{N}\}$

CLOSED FOR ADDITION

- WE CAN ADD TWO AND WE GET ANOTHER

* - WE CAN ADD INVERSES (SUBTRACT)
AND GET ANOTHER

INVERSES: FOR $b \in \mathbb{Z}$, $-b \in \mathbb{Z}$ \wedge $b + (-b) = 0$

IDENTITY: FOR $b \in \mathbb{Z}$, $b + 0 = b$.

RATIONAL NUMBERS \mathbb{Q}

$\left\{ \frac{a}{b} \mid a, b \in \mathbb{Z}, b \neq 0 \right\}$

CLOSED FOR MULTIPLICATION

IDENTITY: FOR $p \in \mathbb{Q}$, $1 \cdot p = p$.

INVERSE: FOR $p \in \mathbb{Q}$, THERE IS ALSO
 q , FOR WHICH $p \cdot q = 1$

OR WE COULD SAY...

IF $p \in \mathbb{Q}$, $\frac{1}{p} \in \mathbb{Q}$, SO THAT

$$p \cdot \frac{1}{p} = 1$$

