

Recall from the Ch. 1 Handout

Number Systems		
English	symbol	other notation
real numbers	$\mathbb{R}$	$(-\infty, \infty)$
natural numbers	$\mathbb{N}$	$\{1, 2, 3, 4, \dots\}$
integers	$\mathbb{Z}$	$\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$ <small>or</small> $\{0, \pm 1, \pm 2, \pm 3, \pm 4, \pm 5, \dots\}$
rational numbers	$\mathbb{Q}$	$\{\frac{a}{b} : a, b \in \mathbb{Z} \text{ and } b \neq 0\}$ <small>easier</small> $\{\frac{a}{b} : a \in \mathbb{Z} \text{ and } b \in \mathbb{N}\}$
irrational numbers	$\mathbb{R} \setminus \mathbb{Q}$	$\{x \in \mathbb{R} : x \notin \mathbb{Q}\}$

Recall from Class Example

		Closed under the operation of:				
Number System	symbol	addition	subtraction	multiplication	division	division by a <u>nonzero</u> number
real numbers	$\mathbb{R}$	yes	yes	yes	no	yes
nonzero real numbers	$\mathbb{R} \setminus \{0\}$	no	no	yes	yes	yes
irrational numbers	$\mathbb{R} \setminus \mathbb{Q}$	no	no	no	no	no

►. Fill in each empty box (directly in) the below chart with either a symbol, yes, or no (as done in the above Class Example chart). No justification needed. The above charts are provided for LaTeX help. Just look at the above LaTeX to see how certain math symbols and charts are LaTeX-ed.

		Closed under the operation of:				
Number System	symbol	addition	subtraction	multiplication	division	division by a <u>nonzero</u> number
natural numbers						
integers						
rational numbers						
nonzero integers						
nonzero rational numbers						