

REAL NUMBER SYSTEM Classification of Numbers

1. For every given number, clearly state all the sets the number belongs to. If the given number is not real, write: "Not \mathbb{R} ", using the notation introduced in class.

	Number	All sets a given number belongs to
1	$-\sqrt{4}$	$= -2 \rightarrow \mathbb{R}, \mathbb{Q}, \mathbb{Z}$
2	π	$\mathbb{R}, \overline{\mathbb{Q}}$
3	0	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}$
4	-4	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}$
5	$\frac{15}{1} = 15$	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$
6	54.82	\mathbb{R}, \mathbb{Q}
7	$\sqrt{-12}$	not \mathbb{R}
8	1.47	\mathbb{R}, \mathbb{Q}
9	-9	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}$
10	$\frac{\sqrt{6}}{5}$	$\mathbb{R}, \overline{\mathbb{Q}}$
11	1.85	\mathbb{R}, \mathbb{Q}
12	$10^2 = 100$	$\rightarrow \mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$
13	$\frac{3}{2}$	\mathbb{R}, \mathbb{Q}
14	x	not enough information

"x" can stand for any number

	Number	All sets a given number belongs to
15	149	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$
16	-0.01	\mathbb{R}, \mathbb{Q}
17	$\sqrt{16} = 4$	$\rightarrow \mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$
18	-27	$\mathbb{R}, \mathbb{Q}, \mathbb{Z}$
19	$\frac{32}{8} = 4$	$\rightarrow \mathbb{R}, \mathbb{Q}, \mathbb{Z}, \mathbb{W}, \mathbb{N}$
20	$-\sqrt{81} = -9$	$\rightarrow \mathbb{R}, \mathbb{Q}, \mathbb{Z}$

2. Give two examples of a number that is real but not rational: π and $\sqrt{5}$.

\rightarrow 2 examples of an irrational number

3. Without giving examples, describe integers using your own words. (a.k.a. do not google it and do not copy the definition, use your notes and explain what you understand by the term "integers").

For example, integers are numbers that are the counting number and their opposites and a zero.

OR

Integers are whole numbers and their negatives.

4. Define a rational number.

A rational number is a real number that can be written as $\frac{p}{q}$, where p is in \mathbb{Z} , q is in \mathbb{Z} , and $q \neq 0$.