

# Classifying Real Numbers

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Date:     

Real Numbers

- Natural Numbers  
(counting numbers)

$$N = \{1, 2, 3, \dots\}$$

- Whole Numbers  
(include zero)

$$W = \{0, 1, 2, 3, \dots\}$$

- Integers  
(includes negatives)

$$I \text{ OR } Z = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$$

- Rational Numbers  
(can be written as a fraction)

$$Q = \left\{ \frac{a}{b} \mid a, b \in I, b \neq 0 \right\}$$

$$\frac{1}{2} \quad -\frac{4}{7}$$

$$0 \quad -0.75 \quad 32$$

- Irrational Numbers  
(cannot be written as a fraction)

$$\bar{Q} = \{ \text{non-terminating, non-repeating decimals} \}$$

$$\pi = 3.1415\dots$$

$$e = 2.718\dots$$

$$\sqrt{2} = 1.41421\dots$$

**R** REAL NUMBERS

