

M\$5 Classwork 1

Sets of Numbers

Instructions: Check every set to which each number belongs. Be prepared to justify your responses.

| Number | Natural | Whole | Integer | Rational | Irrational | Not a real number |
|----------------|---------|-------|---------|----------|------------|-------------------|
| -25 | | | | | | |
| $\frac{1}{25}$ | | | | | | |
| $\sqrt{25}$ | | | | | | |
| $\sqrt{-25}$ | | | | | | |
| 0.25 | | | | | | |
| 0.2525... | | | | | | |
| 0.12345... | | | | | | |
| $\sqrt[3]{25}$ | | | | | | |

A **set** is a collection of objects called **elements** surrounded by braces (e.g., $\{a,b,c\}$).

Examples of sets of real numbers:

a) *Natural Numbers (or Counting Numbers)* $\{1, 2, 3, \dots\}$

b) *Whole Numbers* $\{0, 1, 2, 3, \dots\}$

c) *Integers* $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

d) *Rational Numbers*

- can be expressed as a ratio of two integers $\frac{a}{b}$, where $b \neq 0$.

Examples: _____

- can be expressed as terminating decimals.

Examples: _____

- can be expressed as repeating decimals.

Examples: _____

e) *Irrational Numbers* are numbers that cannot be expressed as a ratio of two integers.

Examples: _____

f) The set of *Real Numbers* includes all the rational numbers and all the irrational numbers.