

BE-1A | THURSDAY 8-24-06

① $16 \div 2 \cdot 5 \cdot 3 \div 6$

② $9 - 3^2$

③ $4 + 7 \cdot 2 + 8$

④ Convert to a fraction
by long division $\frac{15}{24}$

-
- Discuss "3" and "9" divisibility
RULES
 - Quiz Friday over $PE(\vec{mD})(\vec{AS})$,
substituting, plus today's
definitions of "sets of numbers"

①

A COLLECTION OF THINGS, in algebra, this will usually be a collection of numbers

EX) Ford, GM, Toyota, Nissan, ...

EX) 2, 4, 6, 8, ...

means "the pattern continues"

$\{e_1, e_2, e_3, \dots\}$

the members of a set

SETS can be called a, b, c, etc.

EX) What is set a? set b?

$a = \{2, 4, 6, \dots\}$ $b = \{ \dots \}$

②

All of the numbers we will use
in Algebra 1A and 1B can be
found in six sets of numbers,
3 are simple, 3 are more complex.

Lets start with the 3 simple ones

① $\{1, 2, 3, \dots\}$ Natural Numbers

② $\{, 1, 2, 3, \dots\}$ Whole Numbers
get it?

③ $\{\dots, -3, -2, -1, , 1, 2, 3, \dots\}$

These are the Integers

Notice, NO FRACTIONS OR DECIMALS in ①, ②, ③

③

SETS ④ AND ⑤ ARE THE
MAIN ONES AS SET ⑥ IS JUST THE
COMBINATION OF ④ AND ⑤ TOGETHER.

ANOTHER NAME FOR A FRACTION.
⇒ COMPARING 2 NUMBERS BY DIVISION
EX) $\frac{1}{2} = .5$ $\frac{1}{3} = .\bar{3}$ $\frac{6}{1} = 6$

④ $\left\{ \frac{a}{b} \text{ WHERE } a, b \text{ ARE INTEGERS, } b \neq 0 \right\}$
OR
 $\left\{ \text{TERMINATING AND REPEATING DECIMALS} \right\}$

THIS IS CALLED THE SET OF RATIONAL NUMBERS,
A BETTER NAME WOULD BE THE SET OF
RATIO NUMBERS.

EX) $\frac{1}{2} = .5$

$\frac{1}{3} = .\bar{3}$

$\frac{6}{1} = 6$

NOTE: ALWAYS T. OR R.

TERMINATING
or

REPEATING

(4)

There is a third type of decimal, NON-Repeating & NON-terminating they go to ∞ with NO pattern.

EX) $\pi = 3.14159 \dots \rightarrow$

$\sqrt{2} = 1.414 \dots \rightarrow$

$\sqrt{3} = 1.732 \dots \rightarrow$

$\sqrt{4} = 2 \Rightarrow \text{NAT., WHOLE, INT., RATIO, REAL}$

$\sqrt{5} \rightarrow$

$\sqrt{6} \rightarrow$

$\sqrt{7} \rightarrow$

$\sqrt{8} \rightarrow \text{irrational, real.}$

(5) {NON-Repeating NON-terminating decimals}

THIS is called the set of

irrational numbers

NOT RATIO

CANNOT BE MADE USING FRACTIONS.

⑥ {rational AND irrational numbers} ^⑤

This set is called the set
OF REAL numbers.

Summary

- ① $\{1, 2, 3, \dots\}$ NATURAL
- ② $\{0, 1, 2, 3, \dots\}$ WHOLE
- ③ $\{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$ INTEGERS
- ④ $\{\frac{a}{b} \text{ where } a, b \text{ are integers}\}$ RATIONAL
OR
 $\{\text{terminating and repeating decimals}\}$
- ⑤ $\{\text{non-terminating, non-repeating decimals}\}$
IRRATIONAL
- ⑥ {rational AND irrational} REALS

⑥

Name All the sets to
which each number belongs:

$$3$$

$$-1$$

$$0$$

$$\frac{1}{3}$$

$$-\frac{5}{6}$$

$$\pi$$

$$\sqrt{16} = 4$$

$$\sqrt{10} = 3.1622776... \Rightarrow$$

$$4000$$

$$6.2$$