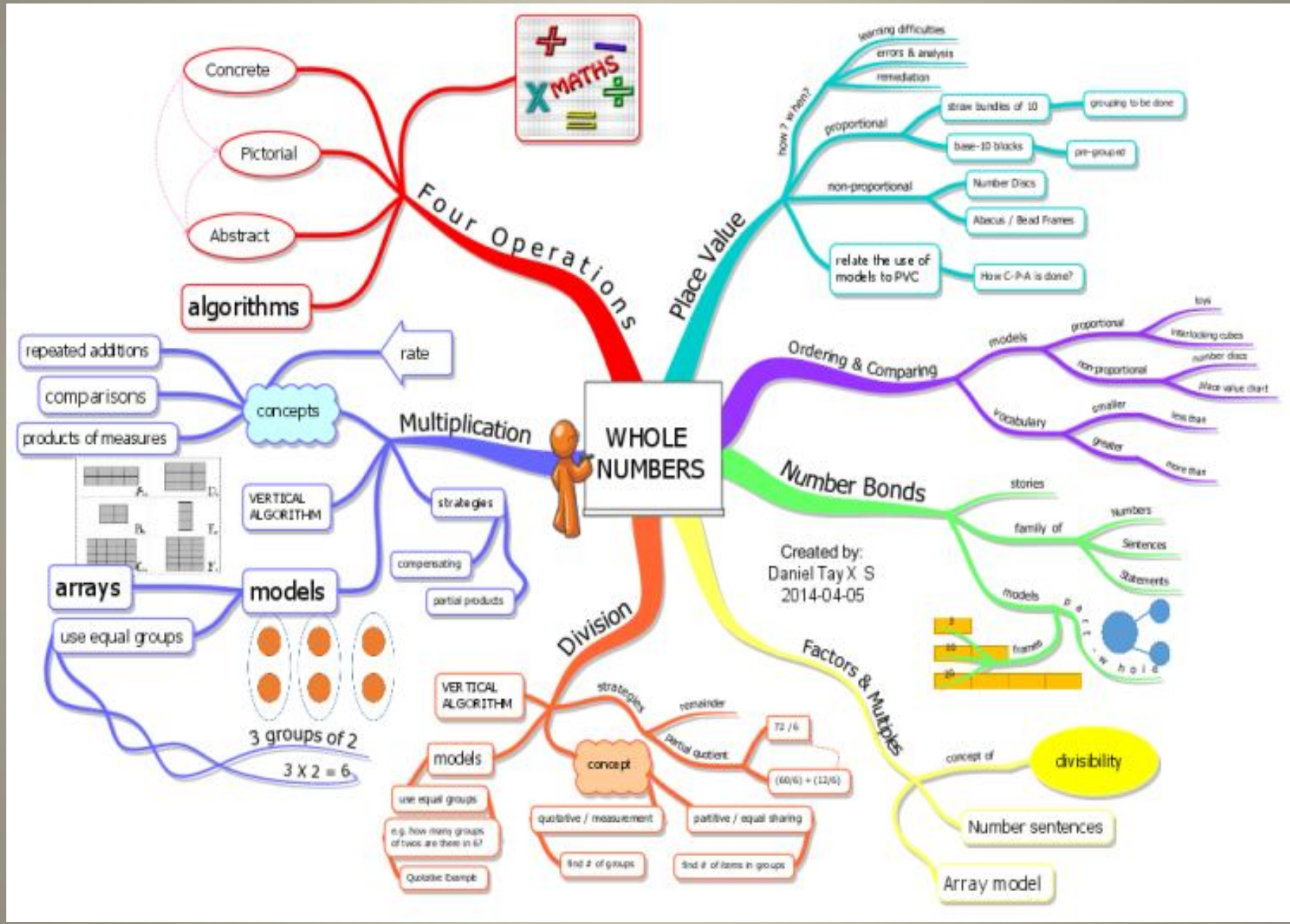
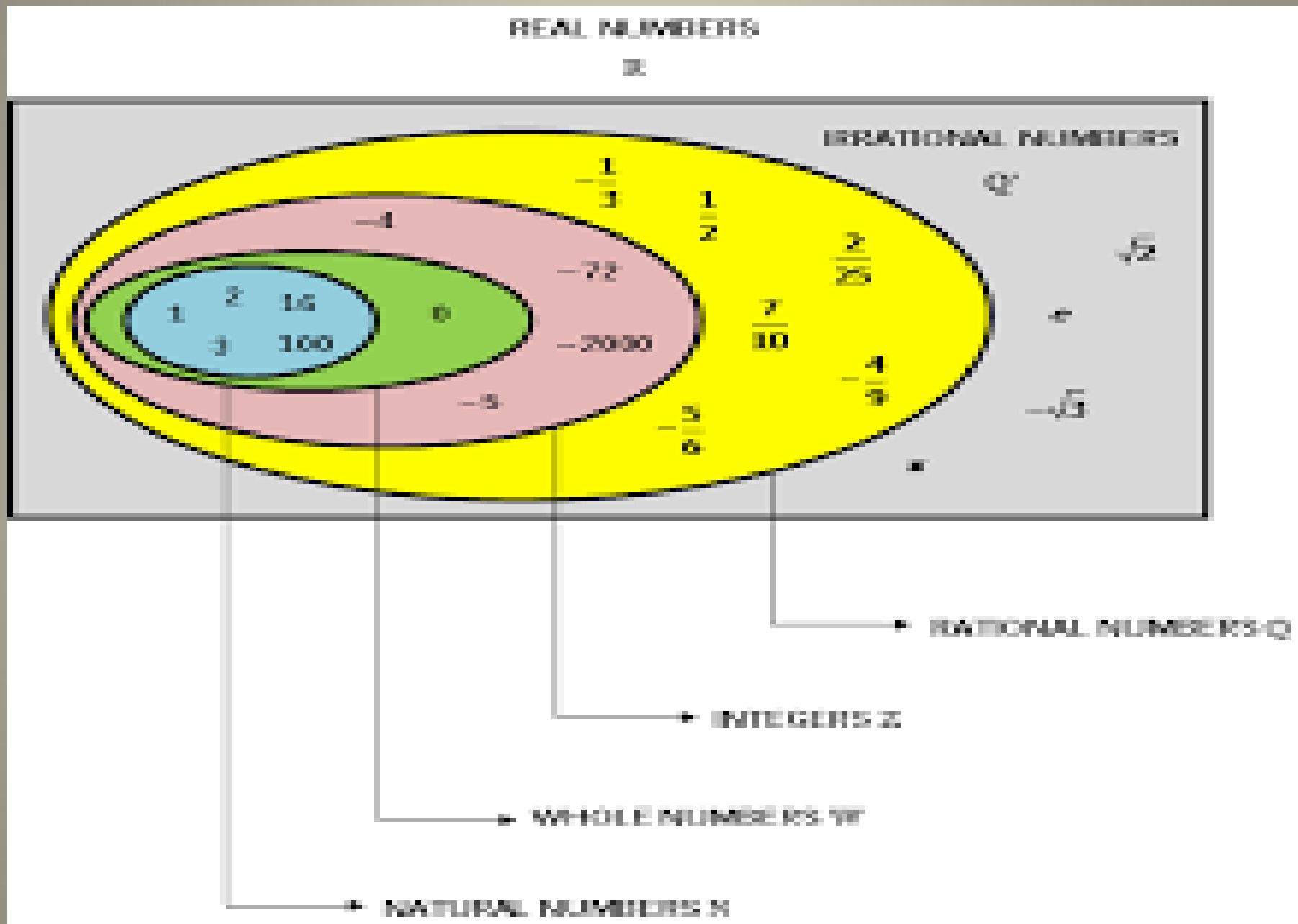
PROJECTION OF WHOLE NUMBERS


WHOLE NUMBERS
Four Operations
Concrete
Pictorial
Abstract
algorithms
MATHS
Place Value
how ? when?
learning difficulties
errors & analysis
remediation
proportional
straw bundles of 10
grouping to be done
base-10 blocks
pre-grouped
non-proportional
Number Discs
Abacus / Bead Frames
relate the use of models to PVC
How C-P-A is done?
Ordering & Comparing
models
proportional
toys
interlocking cubes
non-proportional
number discs
Place value chart
vocabulary
smaller
less than
greater
more than
Number Bonds
stories
family of
numbers
Sentences
Statements
models
part - whole
frames
Multiplication
concepts
repeated additions
comparisons
products of measures
rate
VERTICAL ALGORITHM
strategies
compensating
partial products
arrays
use equal groups
models
3 groups of 2
3 X 2 = 6
Division
VERTICAL ALGORITHM
strategies
remainder
partial quotient
72 / 6
(60/6) + (12/6)
models
use equal groups
concept
quotative / measurement
partitive / equal sharing
find # of groups
find # of items in groups
Factors & Multiples
concept of
divisibility
Number sentences
Array model
Created by:
Daniel Tay X S
2014-04-05

Number System

- NATURAL NUMBERS (N)
- WHOLE NUMBER (W)
- INTEGERS (Z)
- RATIONAL NUMBERS (Q)
- IRRATIONAL NUMBERS (I)


3 4 7 6 0 2
7 9 5 8


REAL NUMBERS
ℝ
IRRATIONAL NUMBERS
ℚ′
1
2
16
3
100
0
−4
−72
−2000
−5
$\frac{1}{3}$
$\frac{1}{2}$
$\frac{2}{25}$
$\frac{7}{10}$
$-\frac{4}{9}$
$-\frac{5}{6}$
$\sqrt{2}$
π
$-\sqrt{3}$
e
RATIONAL NUMBERS-Q
INTEGERS Z
WHOLE NUMBERS W
NATURAL NUMBERS N

(i) Smallest natural number is **1**

(ii) Smallest whole number is **0**

(iii) Largest natural number is **can not be obtained**

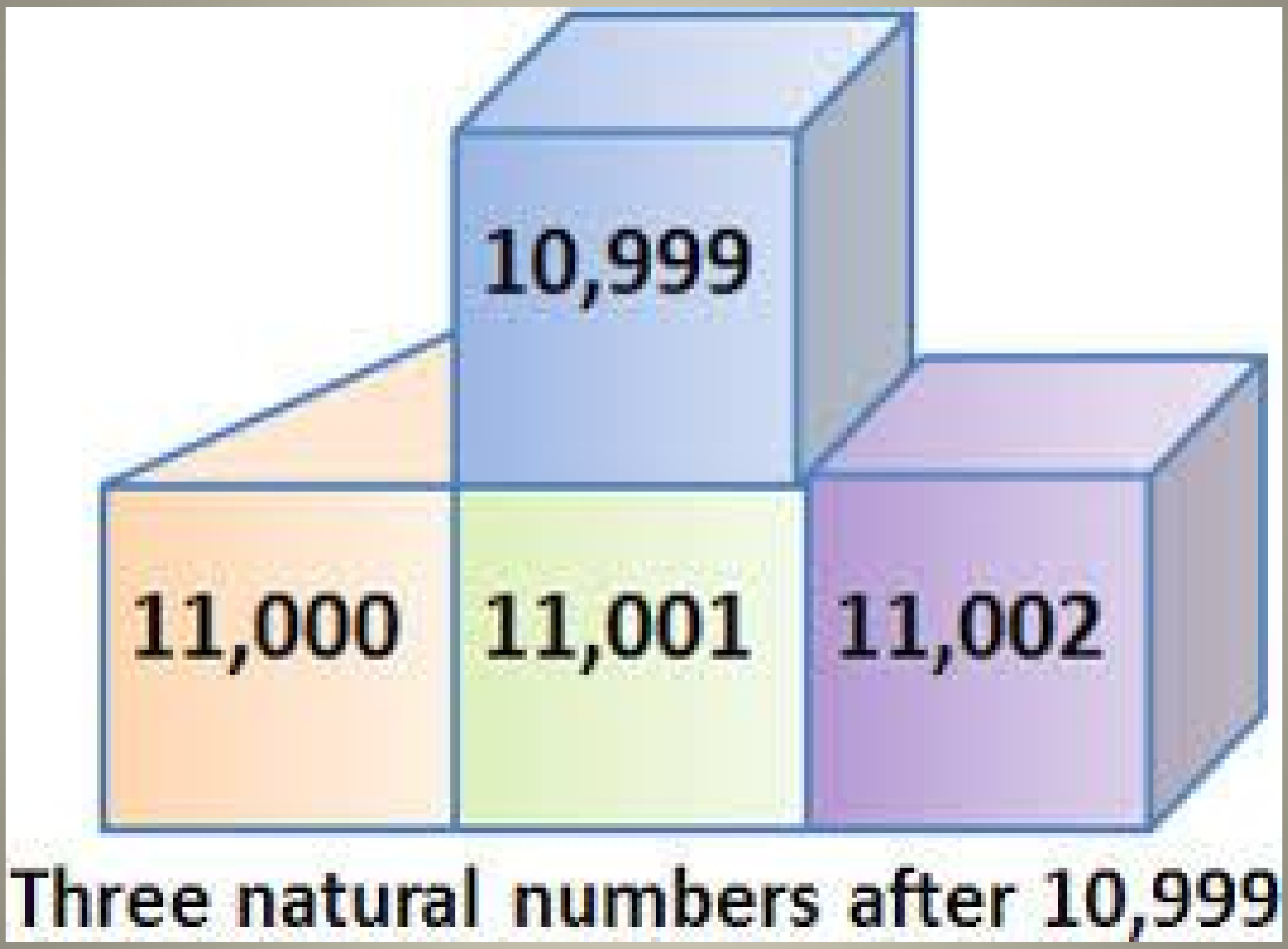
(iv) Largest whole number is **can not be obtained**

(v) All natural numbers are **whole numbers**

(vi) All whole numbers are not **natural numbers**

(vii) Successor of 4099 is **4099 + 1 = 4100**

(viii) Predecessor of 4330 is **4330 – 1 = 4329**



Three natural numbers after 10,999

1

Mr. Anker Tests, Mathematics

Place the correct comparison sign between the two values.

714,636 ◯ 714,649

< = >

Press the **return** or **enter** key to check your answer.

Score

0

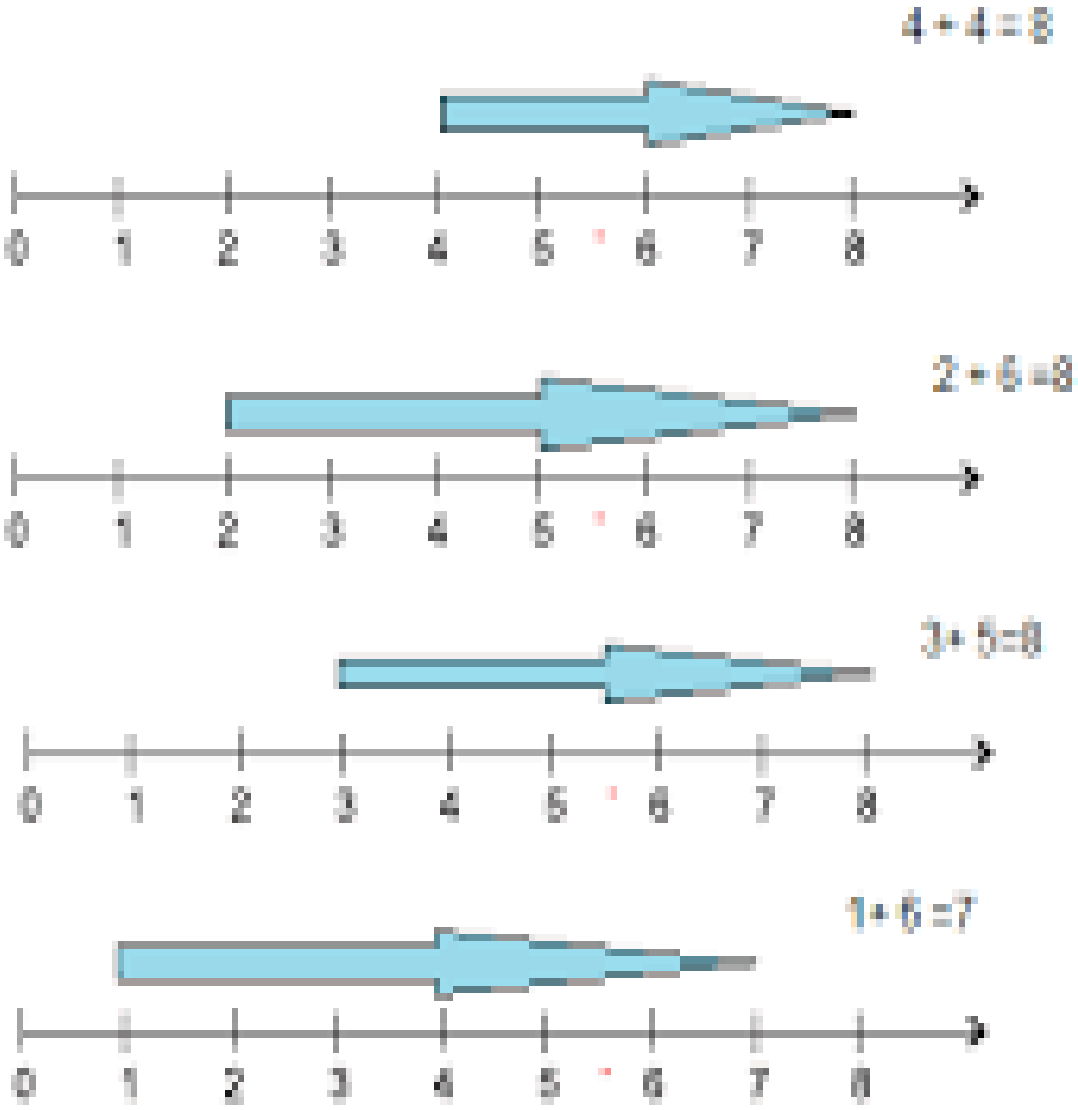
Apple-Q to quit (Mac)
alt-F4 to Exit (Win)
Back returns to browser.

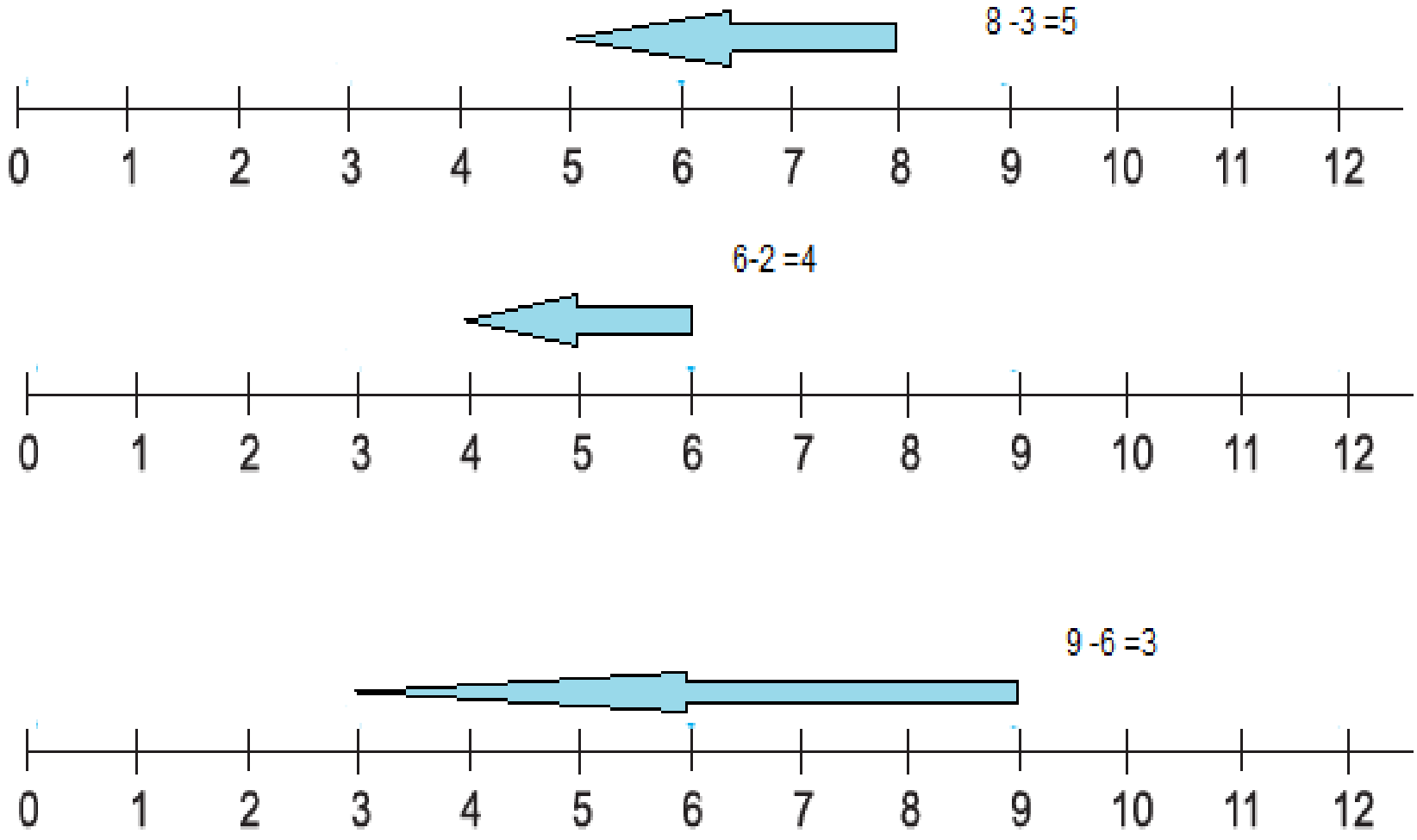
Greater than, Less than, or Equal to, Set 8

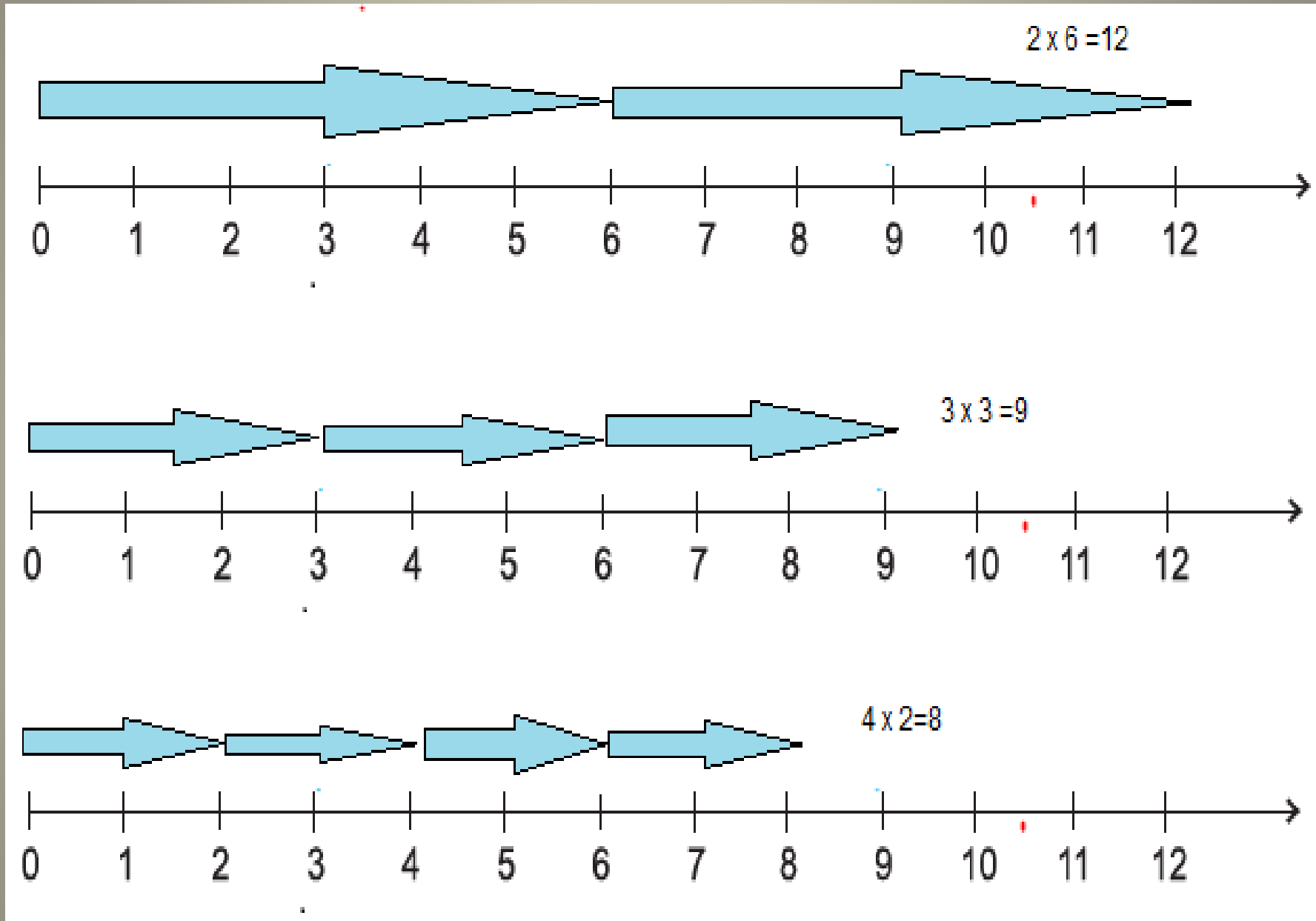
Symbols are used to show how the size of one number compares to another. These symbols are < (less than), > (greater than), = (equals) ≠ or not equal sign

Less than Smaller than	<	>	Greater than More than Bigger than Larger than

example, since 2 is smaller than 6 and 6 is larger than 2, we can write: 2 < 6, which says the same as 6 > 2 and of course 6=6


4 + 4 = 8
0 1 2 3 4 5 6 7 8
2 + 6 = 8
0 1 2 3 4 5 6 7 8
3 + 5 = 8
0 1 2 3 4 5 6 7 8
1 + 6 = 7
0 1 2 3 4 5 6 7 8


8 -3 =5
0 1 2 3 4 5 6 7 8 9 10 11 12
6-2 =4
0 1 2 3 4 5 6 7 8 9 10 11 12
9 -6 =3
0 1 2 3 4 5 6 7 8 9 10 11 12


2 x 6 =12
0 1 2 3 4 5 6 7 8 9 10 11 12
3 x 3 =9
0 1 2 3 4 5 6 7 8 9 10 11 12
4 x 2=8
0 1 2 3 4 5 6 7 8 9 10 11 12

Closure Property Of Whole Numbers

- **Addition of whole numbers** always gives a whole number. Thus whole numbers are closed under addition.
  - For Example, 3+8 = 11
- **Subtraction of whole numbers** does not always give a whole number. Thus whole numbers are not closed under subtraction.
  - For Example, 5-7 = -2, which is a negative integer and not a whole number.
  - For Example, 9-6 = 3 which is whole number.

(i) $2 + 8 = 8 + 2$	(a) Commutativity of multiplication
(ii) $8 \times 90 = 90 \times 8$	(b) Commutativity of addition
(iii) $885 \times (100 + 45)$ $= 885 \times 100 + 885 \times 45$	(c) Associative property of multiplication
(iv) $5 \times (4 \times 28)$ $= (5 \times 4) \times 28$	(d) multiplication Distributtion on addition

Properties of Whole Numbers

(i) Closure Property

The sum of two whole numbers is always a whole number. i.e $a+b=c$

For eg:- $5 + 10 = 15$

↓ ↓ ↘

whole nos. whole nos = whole nos.

The product of two whole numbers is always a whole number. $a \times b = c$

- **Commutative** — Order of the terms does not charge your answer

  $3 + 5 = 5 + 3$ $\quad a + b = b + a$

  $4 * 3 = 3 * 4$ $\quad x * y = y * x$

- **Associative** — Moving grouping symbols does not change your answer

  $3 + (5 + 7) = (3 + 5) + 7$ $\quad (6 * 5) * 9 = 6 * (5 * 9)$

  $a + (b + c) = (a + b) + c$ $\quad a * (b * c) = (a * b) * c$

- **Distributive** — Multiply your outside term times all terms inside the parentheses

  $a(b + c) = ab + ac$ $\quad 5(7 + 9) = 5(7) + 5(9)$

- **Identity**

  Of Addition: $3 + 0 = 3$ $\quad x + 0 = x$

  Of Multiplication: $5 * 1 = 5$ $\quad x * 1 = x$

Commute

Dad commutes → to and ← from work by train.

Commutative Property of

Addition	Multiplication
4+5=9	4×5=20
5+4=9	5×4=20

Identity

The fingerprints revealed the thief's identity.

Identity Property of

Addition	Multiplication
3+0=3	3×1=3

Associate

When at school, Josh often associates with Tanner. 

When at home, Josh often associates with Kevin. 

Associative Property of

Addition	Multiplication
6+(7+3)=16	2×(5×4)=40
(6+7)+3=16	(2×5)×4=40

Distribute

Grandma distributes gifts to each grandchild.

Distributive Property

20 + 30

5(4+6) = 50

Name: _____ Date: _____

1) Round off 12099 to the
   a. Nearest ten
   b. Nearest hundred
   c. Nearest thousand

2) Round off 19997 to the
   a. Nearest ten
   b. Nearest hundred
   c. Nearest thousand

3) Round off 29808 to the
   a. Nearest ten
   b. Nearest hundred
   c. Nearest thousand

4) A number when rounded off to the nearest hundred is 500. What is the smallest possible number?

5) A number when rounded off to the nearest ten is 550. What is the greatest possible number?

6) A number when rounded off to the nearest ten is 2570. What is the smallest possible number?

7) A number when rounded off to the nearest thousand is 127000. What is the greatest possible number?

8) Mary had $50 more than Joe. After Mary spent $80, Joe had twice as much as Mary. How much do they have at first?

9) Lina had $62 less than Randy. After Lina spent $44, Randy had thrice as much as Lina. How much do they have at first?