Day 2

Sunday, August 27, 2017
12:50 PM

Plan:

I. Get out your homework
II. Warm-up (5-min Check)
III. 1.1 - Sets of Numbers
IV. Function Boggle
V. Start homework

5-Minute Check

Use with Lesson **1-1**

1. Find the value of $x^2 + 4x + 4$ if $x = -2$. $(-2)^2+4(-2)+4$ $4-8+4=0$

2. Solve $5n + 6 = -3n - 10$. $5n+6=-3n-10$ $8n=-16$ $n=-2$

3. Evaluate $|x - 2y| - |2x - y| - xy$ if $x = -2$ and $y = 7$. $|-2-2(7)|-|2(-2)-(7)|-(-2)(7)$ $|-2-14|-|-4-7|+14$ $|-16|-|-11|+14$ $16-11+14$ 19

4. Factor $8xy^2 - 4xy$. $4xy(2y-1)$

Standardized Test Practice

5. Simplify $\frac{12x^5y^4}{21xy^4}$. $\frac{4x^4}{7y}$

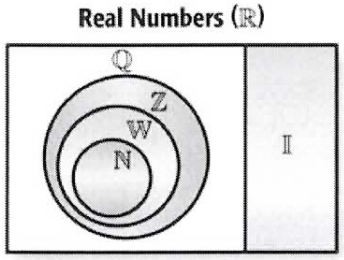
ANSWERS

1. 0
2. -2
3. 19
4. $4xy(2y-1)$
5. $\frac{4x^4}{7y}$

Today's objectives:

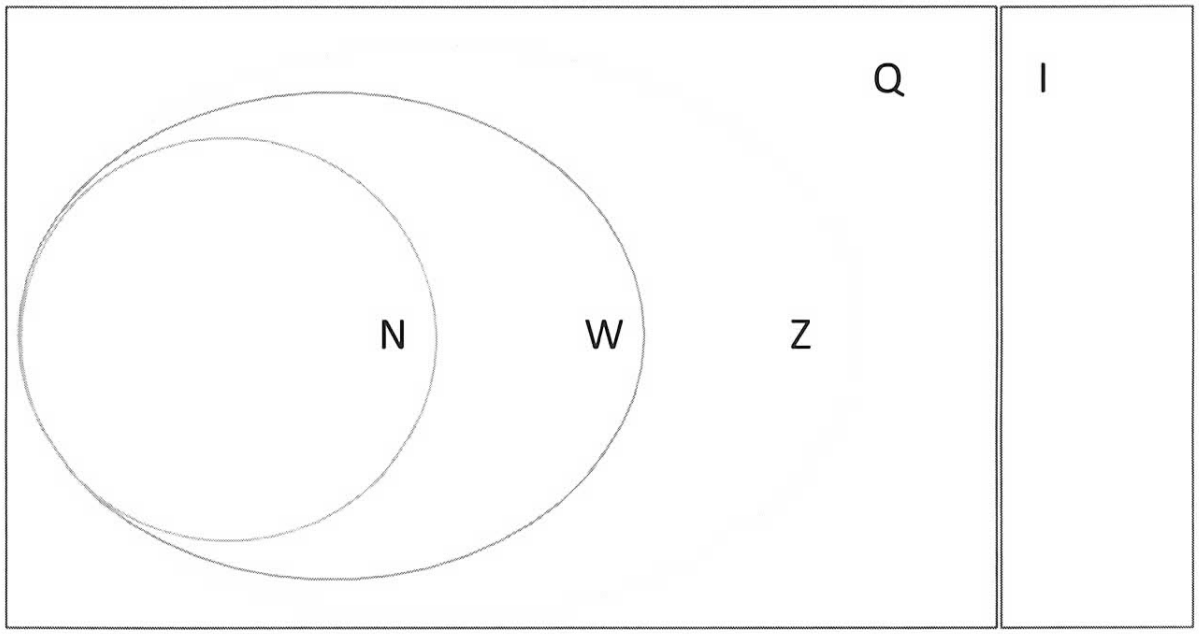
- Describe subsets of real numbers.

KeyConcept Real Numbers

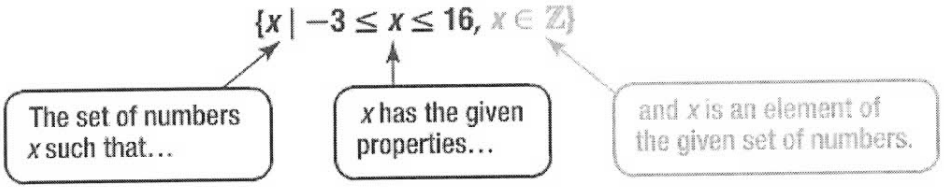


Letter	Set	Examples
ℚ	rationals	$0.125, -\frac{7}{8}, \frac{2}{3} = 0.666\ldots$
𝕀	irrationals	$\sqrt{3} = 1.73205\ldots$
ℤ	integers	$-5, 17, -23, 8$
𝕎	wholes	$0, 1, 2, 3\ldots$
ℕ	naturals	$1, 2, 3, 4\ldots$

Activity: One person from each row has a set of numbers. In you groups decide which set of real numbers each number belongs. When called, your group will write your numbers in the appropriate sets on the board.



These and other sets of real numbers can be described using **Set-builder Notation**.



Example 1

A. Describe {2, 3, 4, 5, 6, 7} using set-builder notation.

$\{x \mid 2 \le x \le 7, x \in \mathbb{Z}\}$

the x are x's; all numbers between 2 & 7; those numbers are integers

B. Describe $x > -17$ using set-builder notation.

$\{x \mid x > -17, x \in \mathbb{R}\}$

all real numbers

C. Describe all multiples of seven using set-builder notation.

$\{x \mid 7n = x, n \in \mathbb{Z}\}$

7 times a number

multiplying 7 by integers to get more numbers in the set

More popular in higher level mathematics is the use of Interval Notation.

For interval notation the symbols [and] are used for endpoints that are **included** in the solution and the symbols (and) are used to indicate an endpoint is **not included** in the interval.

Example 2

A. Write $-2 \le x \le 12$ using interval notation.

$[-2, 12]$

B. Write $x > -4$ using interval notation.

$(-4, \infty)$

C. Write $x < 3$ or $x \geq 54$ using interval notation.

$(\infty, 3) \cup [54, \infty)$

↑ union = and

Toolkit Boggle: What do you remember?

Function Boggle

1. Each group will receive one copy of six parent functions and one copy of the answer sheet.

2. You should work in your group for about 10-15 minutes to write down as many properties of the six functions as possible.

3. After sufficient time, we will start with identity function and have one group share one property they recorded. The teacher first determines if the property is true. If correct, teacher asks the class if any other group recorded the same property. If another group wrote down the same property, everyone crosses it off their list. If only one group wrote that specific property, the group earns a point.

The group with the most points at the end "wins".