

R.1 – The Real Number System

Skills

- R.1a - Convert a solution set that is in set notation into interval notation.
- R.1b - Convert a solution set represented on a number line into interval notation.

Introduction



Set Notation

Interval notation



Set Notation

Interval notation

EXAMPLE 1 Write interval notation for each set and graph the set.

a) $\{x \mid -4 < x < 5\}$

b) $\{x \mid x \geq 1.7\}$

c) $\{x \mid -5 < x \leq -2\}$

d) $\{x \mid x < \sqrt{5}\}$

Work for Example 1

13)	15)
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R.1 - EXTRA PRACTICE

Extra Practice for R.1a on p.7 #11-20 - Follow the instructions in the book and complete the problems.

Extra Practice for R.1b on p.7 #23-28 - Follow the instructions in the book and complete the problems.

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R.1 - IXL PRACTICE

<p>IXL - A1-G.3 Interval notation</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">Date</td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%;"></td> <td style="width: 15%; text-align: center;">Final</td> </tr> <tr> <td>Grade</td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td style="background-color: #cccccc;"></td> <td></td> </tr> <tr> <td>Initials</td> <td></td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: center; margin-top: 10px;">R.1a and R1.b</p>	Date				Final	Grade					Initials					<p>Closing Reflection:</p>
Date				Final												
Grade																
Initials																

Properties of the Real Numbers

For any real numbers a , b , and c :

$$a + b = b + a \text{ and} \\ ab = ba$$

Commutative properties of addition and multiplication

$$a + (b + c) = (a + b) + c \text{ and} \\ a(bc) = (ab)c$$

Associative properties of addition and multiplication

$$a + 0 = 0 + a = a$$

Additive identity property

$$-a + a = a + (-a) = 0$$

Additive inverse property

$$a \cdot 1 = 1 \cdot a = a$$

Multiplicative identity property

$$a \cdot \frac{1}{a} = \frac{1}{a} \cdot a = 1 \quad (a \neq 0)$$

Multiplicative inverse property

$$a(b + c) = ab + ac$$

Distributive property

Absolute Value

For any real number a ,

$$|a| = \begin{cases} a, & \text{if } a \geq 0, \\ -a, & \text{if } a < 0. \end{cases}$$

When a is nonnegative, the absolute value of a is a . When a is negative, the absolute value of a is the opposite, or additive inverse, of a . Thus, $|a|$ is never negative; that is, for any real number a , $|a| \geq 0$.