***Real Numbers*  Family Letter**

**Dear Family,**

In this module, ***Real Numbers***, students will use their prior knowledge of the set of rational numbers to develop understanding of the set of real numbers. By having a solid understanding of real numbers, students will be better prepared to study more advanced mathematical concepts in later courses as well as making mathematical connections in everyday life.

**What Did Students Learn Previously?**

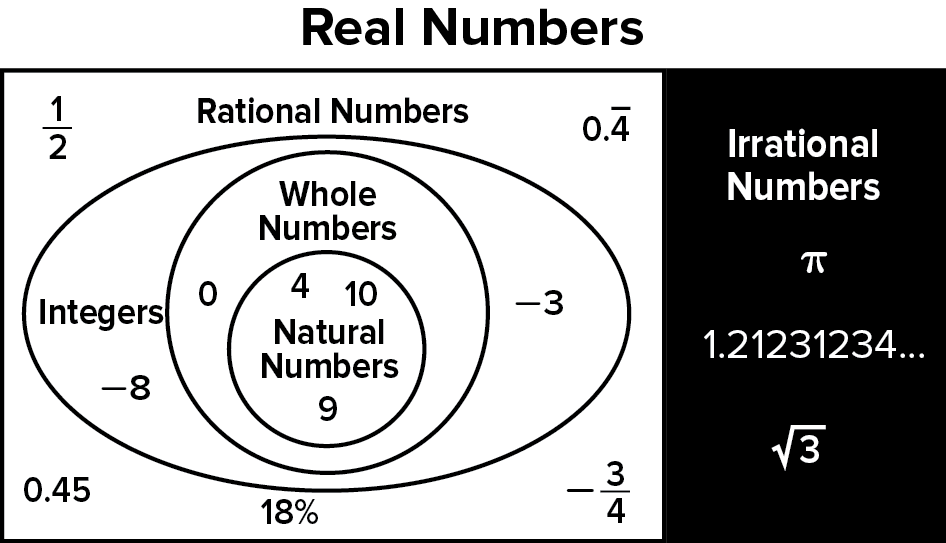
In earlier grades, students understood comparing and ordering rational numbers and computations with rational numbers.

For example, −3.5 > −4.75, because −3.5 is closer to zero. When subtracting rational numbers, −5 – 2 produces the same result as −5 + −2.

**What Will Students Learn in This Module?**

**Roots**

* Students will understand how to find and use **square** and **cube roots**.
* In most real-world situations, only the positive or **principal square root** is considered, indicated by a radical sign, √. When both positive and negative **square roots** are needed, the ± symbol is used before the radical sign. For example, √25 = 5, because 5 x 5 = 25, and ±25 = 5 and −5, because 5 x 5 = 25 and −5 x −5 = 25.

**Real Numbers**

* Students will understand how to identify and describe sets of numbers in the **real number** system.
* Students will understand how to compare and order numbers in the **real number** system.
* Students will understand how to estimate   
  **irrational numbers**. Using a number line,   
  estimating to a place value, and **truncating**   
  decimal expansions are methods that can be   
  used when estimating irrational numbers.

**What Vocabulary Terms Will Students Use?**

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| --- | --- |
| **Term** | **Definition** |
| **counterexample** | A statement or example that shows a conjecture is false. |
| **cube root** | One of three equal factors of a number. |
| **inverse operations** | Pairs of operations that undo each other. |
| **irrational number** | A number that cannot be expressed as the ratio , where *a* and *b* are integers and *b* ≠ 0. |
| **natural numbers** | The set of numbers used for counting. |
| **perfect cube** | A number whose cube root is an integer. |
| **perfect square** | A number whose square root is a whole number. |
| **principal square root** | The positive square root of a number. |
| **radical sign** | The symbol used to indicate a positive square root, √. |
| **real number** | The set of rational numbers together with the set of irrational numbers. |
| **square root** | One of the two equal factors of a number. |
| **truncating** | A process of approximating a decimal number by eliminating all decimal places past a certain point without rounding. |

**How You Can Provide Support**

1. Support your child’s understanding of real numbers by asking them to explain how they are used in everyday life.
   * *Irrational Numbers:* Discuss the necessity to use approximations of irrational numbers and when you might use those approximations, such as using to find the circumference or area of a circle.
   * *Square Roots:* Have your child explain how they would find the dimensions of a square floor, if they knew the area in square feet.
2. Encourage your child to have a positive, growth-oriented attitude towards mathematics and their learning.
   * Encourage them to ask questions – both at home and in class. Sometimes, an answer to a question will generate more questions. That’s how you know they are learning!
   * Encourage your child to embrace challenges and remind them that every challenge is an opportunity to learn something new.
   * Celebrate successes – both small and large.
3. Contact me to arrange a time to discuss the specifics of your child’s performance and how we can work together to help them succeed in this module.

Sincerely,

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(Teacher’s Name) (Email/Phone)