# Grade 8 Standards Parent Resource

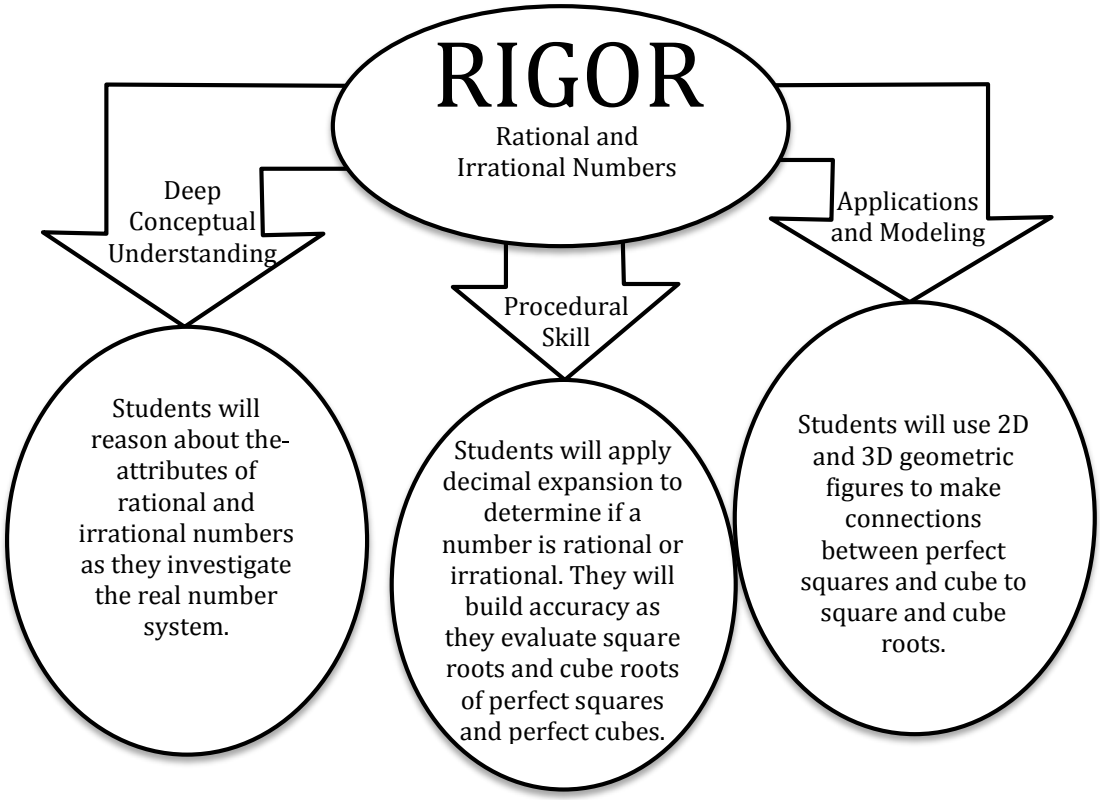
# *Unit 5: The Real Number System*

*Unit 5 includes 2 topics of study, listed below. This resource is for Topic 2.*

| *Topic 1* | ***Topic 2*** |
|---|---|
| Magnitude and Scientific Notation | ***Rational and Irrational Numbers*** |

| Topic | **Learning Goals by Common Core State Standard**<br>*Students will be able to...* |
|---|---|
| **Rational and Irrational Numbers** | • Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.<br>• Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.<br>• Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.<br><br>*Instructional videos in the hyperlinks above are meant to support C2.0 content, but may use vocabulary or strategies not emphasized by MCPS.* |

The Common Core State Standards require a balance of three fundamental components that result in rigorous mathematics acquisition: deep conceptual understanding, procedural skill, and mathematical applications and modeling.



# Grade 8 standards Parent Resource

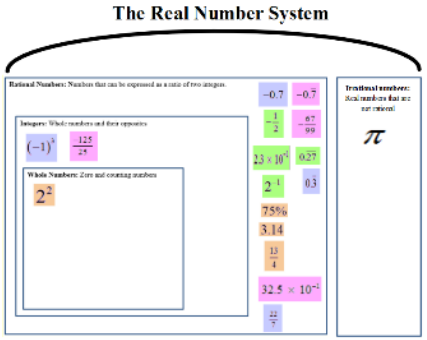
Unit 5: The Real Number System  Topic 2: Rational and Irrational Numbers

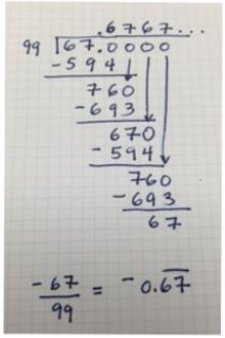
## Learning Experiences by Common Core State Standard

**Topic 2: Rational and Irrational Numbers**

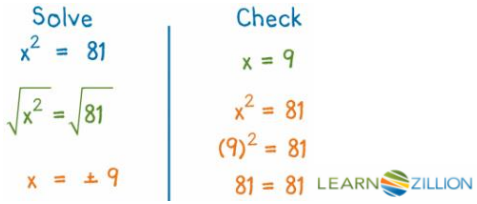
### In school, your child will…

- Know that numbers that are not rational are called irrational. Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.

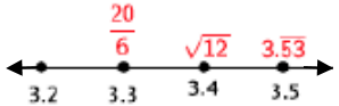



- Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where $p$ is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that √2 is irrational.




- Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.




### At home, your child can…

- Use a standard clock, to change the numbers on the face to the perfect squares. To reinforce square roots of perfect squares.
- Use graph paper, to approximate and draw perfect squares to determine if a number is rational or irrational. Have your child find the area, using length times width and find the perfect square or approximate non-perfect squares.

*Additional Resources*

- What's a Rational Number? (video tutorial)
- Introduction to Rational and Irrational Numbers (video tutorial)
- How do you turn a repeating decimal into a fraction? (video tutorial)
- LearnZillion: Solve equations with squares and square roots (video tutorial)
- Approximating Irrational Number on Number Line (video tutorial)
- NRICH: Mini Cross-number (online game)
- NRICH: One Wasn't a Square (online game)
- NRICH: Cycling Squares (online game)
- Rational or Irrational? (online check)
- Estimate Positive and Negative Square Roots (online check)
- Estimate Cube Roots (online check)
- Grade 8 Standards Unit 5 Topic 2 Rational and Irrational Numbers (flexbook)

*Additional Practice links support C2.0 content,*
*but may use vocabulary or strategies not emphasized by MCPS.*