Wednesday, November 6, 2013

POP Quiz :) Take a few minutes to look over the perfect squares and perfect cubes.

Chapter 4 Test on Friday!

Find the square root of the following numbers:

1. 25
2. 225
3. 9
4. 121
5. 400

Find the cube root of the following numbers:

6. 64
7. 4096
8. 8
9. 1728
10. 216

The Real Number System

Chapter 4 Lesson 7

Student Objective: Students will identify and compare numbers in the real number system and solve equations by finding square roots or cube roots.

Essential Question: What is the relationship between the area of a square and the lengths of its sides?

Identifying Real Numbers

Remember, rational numbers are numbers that can be written as fractions.

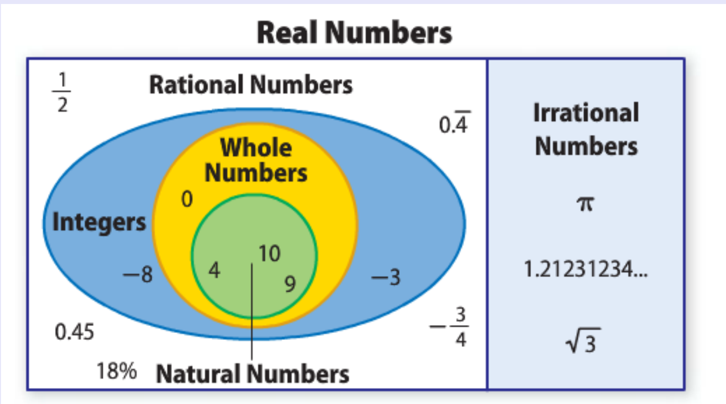
Examples: $1\frac{2}{5} = \frac{7}{5}$ $-4 = -\frac{4}{1}$ $0.15 = \frac{15}{100}$

$0.\overline{3} = \frac{1}{3}$ $\sqrt{25} = \frac{5}{1}$

An irrational number is a number that cannot be written as a fraction. When written as decimals, irrational numbers never end and have no repeating pattern.

Examples: $\pi \approx 3.14159\ldots$ $-\sqrt{5} \approx -2.2360679\ldots$

The sets of rational numbers and irrational numbers together make up the set of real numbers. The diagram shows the relationship among the real numbers.



Name all sets of numbers to which each real number belongs. Write natural, whole, integer, rational, or irrational.

a. $\frac{21}{7} = 3$ rational, natural, whole, integer

b. -2.5 rational

c. 0.2 rational

d. $\sqrt{38}$ irrational

1a. 0.7 rational

1b. $\sqrt{100} = 10$ rational, natural, whole, integer

1c. $\frac{9}{5}$ 1.8 rational

1d. -6 rational, integer

Comparing Real Numbers

1. Write each number as a decimal.
2. Compare the decimals.

line up the decimal poits

Write <, >, or = to make the statement true.

$3\frac{1}{3} < \sqrt{15}$ $\qquad$ $7\frac{2}{5} < \sqrt{57}$

3.333... $\quad$ 3.8729... $\qquad$ 7.4 $\quad$ 7.5498...

7.4
7.5498...

3.333...
3.872...

Order the set of numbers from least to greatest.

$\{8\frac{4}{5}, \sqrt{64}, 8.3, \sqrt{76}\}$

$8\frac{4}{5}$ = 8.80
$\sqrt{64}$ = 8.00
8.3 = 8.32
$\sqrt{76}$ = 8.71

$\sqrt{64}$, 8.3, $\sqrt{76}$, $8\frac{4}{5}$

Order the set $\{\sqrt{30}, 5.6, \frac{15}{3}, 5\frac{2}{3}\}$ from greatest to least.

least to greatest

$\sqrt{30}$ = 5.47
5.6 = 5.60
$\frac{15}{3}$ = 5.00
$5\frac{2}{3}$ = 5.66

$\frac{15}{3}$, $\sqrt{30}$, 5.6, $5\frac{2}{3}$

Solving Equations with by finding Square or Cube Roots

*If $x^2 = y$, then $x = \pm\sqrt{y}$. If $x^3 = y$, then $x = \sqrt[3]{y}$.

Solve each equation. Round to the nearest tenth, if necessary.

1. $a^2 = 38$

2. $a^3 = 125$

4a. $363 = 3d^2$

4b. $729 = s^3$

4c. $100 = 4n^2$

4d. $512 = x^3$

In most real-world situations, a negative square root does not make sense. Consider using only the positive square root.

Homework: Lesson 7 Homework Practice Worksheet