Adding and Subtracting Rational Numbers

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Grade 7

Number Sense and Operations

7th grade
Missouri Learning Standards (MLS)

7.NS.A.1.a

Number Sense and Operations

7th grade
Common Core State Standards

CCSS.MATH.CONTENT.7.EE.B.3

Objective

Apply and extend previous understandings of operations to add, subtract, multiply and divide rational numbers.

Apply and extend previous understanding of numbers to add and subtract rational numbers.

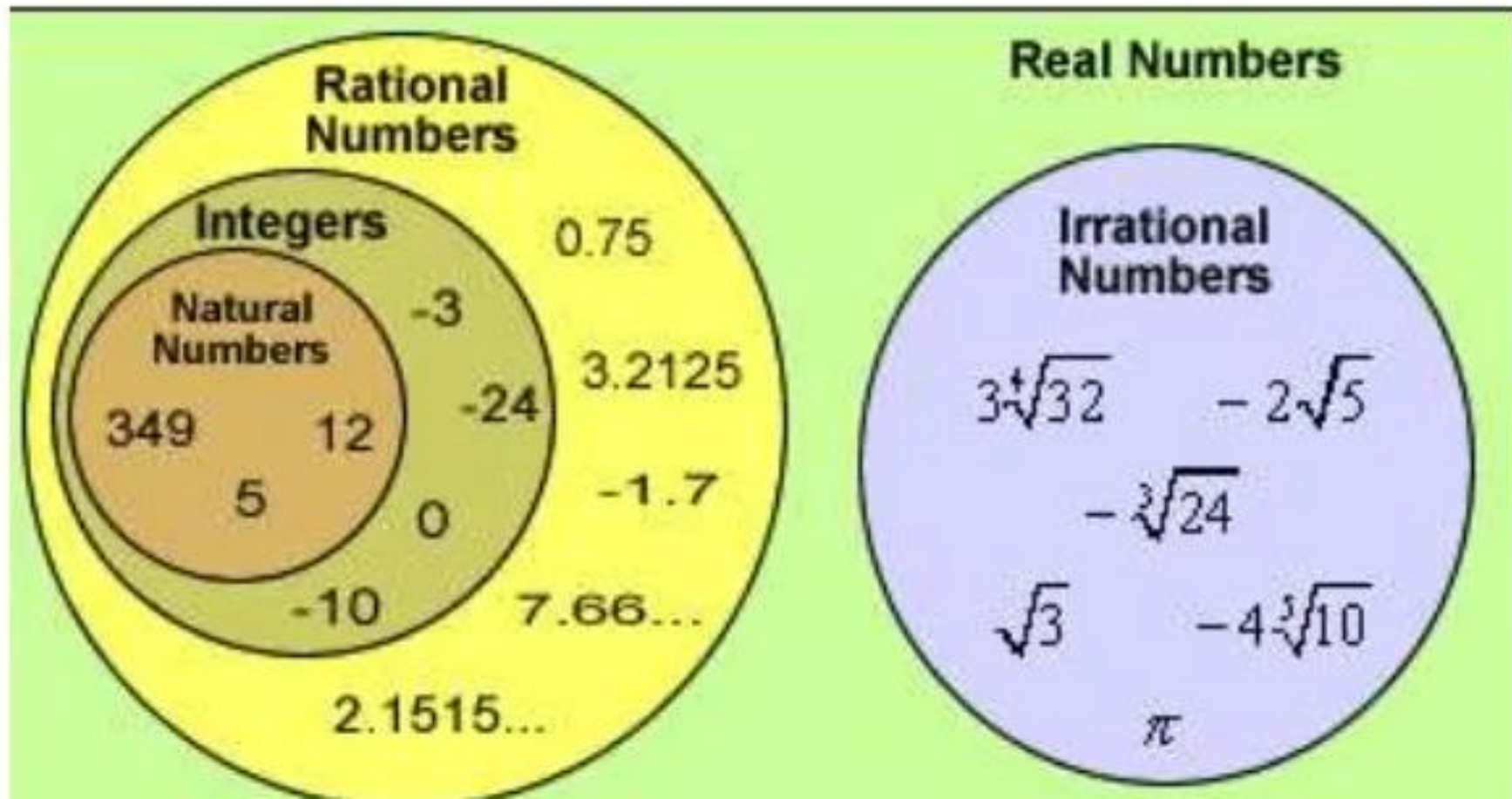a. **Add and subtract rational numbers**

Key terms:

Rational Number
A rational number is a number that can be in the form p/q where p and q are integers and q is not equal to zero.

Prior Knowledge Needed

- Students will need to know how to read and write.
- Students will need to know how to add and subtract.

Rational vs. Irrational

Rational Numbers

Integers

Natural Numbers

349   12

5

0

-3

-24

-10

0.75

3.2125

-1.7

7.66...

2.1515...

Real Numbers

Irrational Numbers

$3\sqrt[4]{32}$ $-2\sqrt{5}$

$-\sqrt[3]{24}$

$\sqrt{3}$ $-4\sqrt[5]{10}$

π

Keys: when adding and subtracting decimals.

To add/subtract decimal numbers:

1. Put the numbers in a vertical column aligning the **decimal** points.
2. **Add/subtract** each column, starting on the right and working left.
3. Place the **decimal** point in the answer directly below the **decimal** points in the terms.

$$
\begin{array}{r}
45.12 \\
+\ 3.71 \\
\hline
48.83
\end{array}
\qquad
\begin{array}{r}
48.18 \\
-3.01 \\
\hline
45.17
\end{array}
$$

Keys: when adding and subtracting fractions.

First, look at the **denominators** (bottom of the fraction). If they are the same, you can add/subtract the fraction. The denominator will stay the same. Next add the **numerators** (top of the fraction) 3 + 2. Lastly, reduce the fraction if you can.

$3/4 + 2/4 = 5/4$ or $1 \frac{1}{4}$

Keys: when adding and subtracting fractions.

Now let's look at a problem with different Denominators. We can rename these fractions using their **least common denominator** (LCD), which is the smallest number that is evenly divisible by all the denominators. Let's' find the LCD

   1/3 + 4/15

LCM

3, 6, 9, 12, **15**, 18, 21

15, 30, 45, 60

Keys: when adding and subtracting fractions.

Now that we found the LCM (15) we can add the fractions.

1/3 + 4/15   1/3 x 5/5 = 5/15 + 4/15 = 9/15 = 3/5

LCM

3, 6, 9, 12, **15**, 18, 21

15, 30, 45, 60

Now it's your turn!

Anna went to the forest to pick some berries for her family. To feed Anna's entire family, she needs 2 ½ pounds of berries. Before she left, her father told her they already had 1/4 pound of berries. How many more pounds of berries will Anna need to collect?

After picking berries, Anna realized she picked .5 lbs extra. She gave the .5 lbs to her friend Sam who already had 1.75 lbs. How many lbs will he have now?