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Analysis of Examples and Problems Related to Types of Fractions, Mixed Numbers, Addition and Subtraction of the Same Fraction

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Abstract
This article provides many useful methods that can be used by those who are just starting to study mathematics or in the elementary grades. The first step to mathematics is formed through the concept of fractions, so in this article I will give general and detailed information to make it simple and understandable for all students.

Keywords: proper fractions, improper fractions, mixed numbers, adding fractions with the same denominator, subtracting fractions with the same denominator.

Introduction

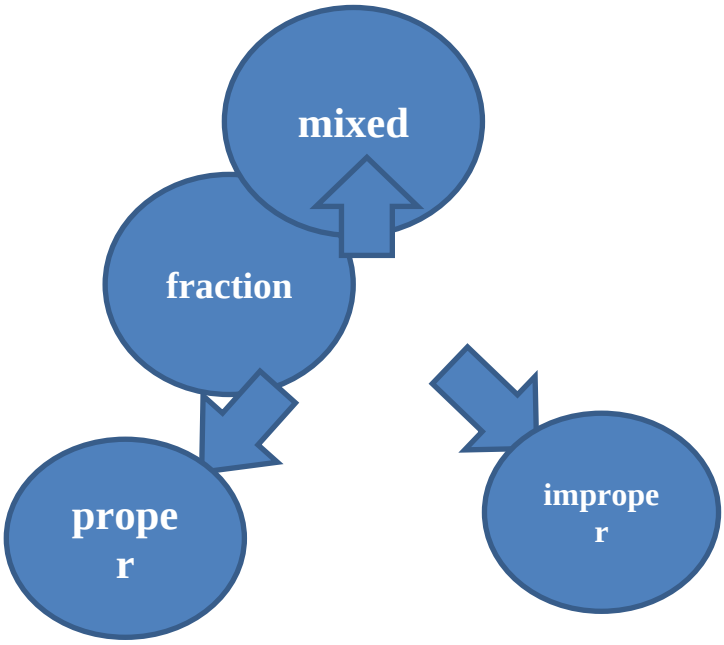
"The future of our country, the tomorrow of our people, the reputation of our country in the world community depends, first of all, on how our children will grow up and become human beings. We should never forget such a sharp truth."

We all know that mathematics is the king of sciences. It is the only science that has preserved its color without any changes. Most people have this concept: "Mathematics is a difficult subject, study another subject instead of it. I do not agree with this statement at all, because this subject is as necessary as water and air for every person. Currently, its capabilities are realized in many areas. Also, perfect learning of mathematics from a young age serves as a foundation for our future. In order to learn this subject well, first of all, it is necessary to form positive conclusions about mathematics in the mind of every student. If we look at the current mathematics textbook for primary school students, a new teaching methodology is used in this textbook.

The methodology of teaching mathematics, first of all, sets the task of teaching and educating young students in a general system. The general methodology reflects the content and systematicity of primary school mathematics, teaches specific methods of teaching each department.[1]

In my previous article, we got acquainted with the concept of "fraction", we talked about its application in life and examples and issues related to the correct formation of concepts related

to them. In this article, we will understand the types of fractions, examples and problems related to adding fractions with the same and different denominators.

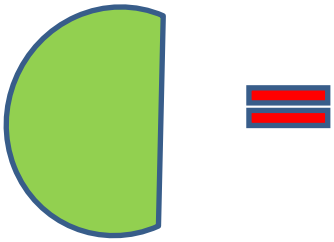


[1]

Fractions are divided into two types: proper and improper fractions.

1. Fractions whose sum is smaller than the denominator are called proper fractions.

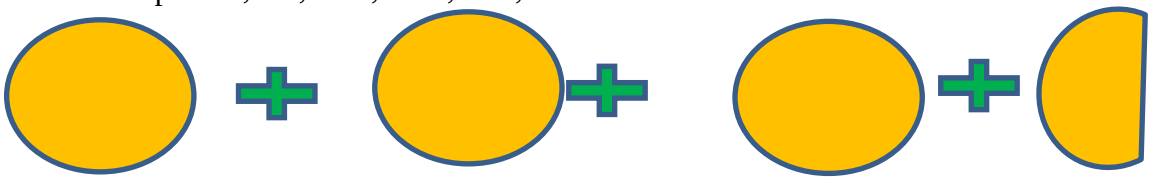
For example: $\frac{1}{2}$, $\frac{12}{13}$, $\frac{2}{3}$, $\frac{8}{9}$, $\frac{4}{7}$, $\frac{5}{6}$,….



$\frac{1}{2}$ It is an example of a proper fraction

2. **Improper fractions** are fractions that are less than or equal to the denominator.

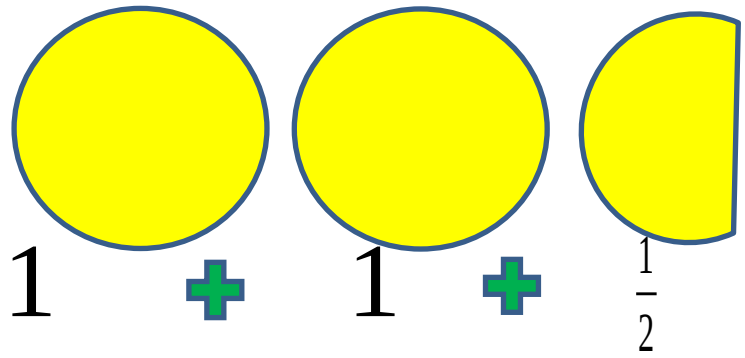
For example: $\frac{5}{2}$, $\frac{4}{3}$, $\frac{11}{8}$, $\frac{25}{21}$, $\frac{13}{6}$, $\frac{5}{5}$…



3. A mixed number is a number that contains whole numbers and proper fractions. Below are examples of mixed numbers.

For example: [1] $1\frac{1}{2}$, $2\frac{12}{13}$, $4\frac{2}{3}$, $6\frac{8}{9}$, $11\frac{4}{7}$, $13\frac{5}{6}$,….

[1] www.pdffactory.com



We learned about proper, improper and mixed fractions. Now let's focus on examples and problems related to their addition and subtraction.

1. If these fractions have the same denominators, then their numerators are added. The action is as follows: $\frac{c}{b}+\frac{a}{b}=\frac{c+a}{b}$

1) $\frac{4}{15}+\frac{7}{15}=\frac{4+7}{15}=\frac{11}{15}$

2) $\frac{13}{31}+\frac{17}{31}=\frac{13+17}{31}=\frac{30}{31}$

3) $\frac{15}{30}+\frac{7}{30}=\frac{15+7}{30}=\frac{22}{30}$

These examples are examples of adding fractions with the same denominator. Now we talked about adding two fractions with the same denominator, but we can continue this series. This is based on the following formula.

$$\frac{a}{b}+\frac{c}{b}+\frac{d}{b}+\ldots+\frac{e}{b}=\frac{a+c+d+\ldots+e}{b}$$

Therefore, if the denominator is the same, even if the number of fractions is infinite, their numerator will be B.

1) $\frac{1}{13}+\frac{3}{13}+\frac{4}{13}=\frac{1+3+4}{13}=\frac{8}{13}$

2) $\frac{1}{13}+\frac{3}{13}+\frac{4}{13}+\frac{5}{13}=\frac{1+3+4+5}{13}=\frac{13}{13}$

3) $\frac{10}{26}+\frac{3}{26}+\frac{4}{26}+\frac{8}{26}=\frac{10+3+4+8}{26}=\frac{25}{26}$

Now let's talk about subtracting fractions with the same denominator.

$$\frac{a}{d} - \frac{b}{d} = \frac{a-b}{d}$$

Let's look at examples of this:

1) $\frac{7}{15} - \frac{4}{15} = \frac{7-4}{15} = \frac{3}{15}$

2) $\frac{17}{31} - \frac{13}{31} = \frac{17-13}{31} = \frac{4}{31}$

3) $\frac{15}{30} - \frac{7}{30} = \frac{15-7}{30} = \frac{8}{30}$

These examples are examples of subtracting fractions with the same denominator. Now we talked about adding two fractions with the same denominator, but this series can be continued. This is based on the following formula.

$$\frac{a}{b} - \frac{c}{b} - \frac{d}{b} - \dots - \frac{e}{b} = \frac{a-c-d-\dots-e}{b}$$ 66

1) $\frac{9}{13} - \frac{3}{13} - \frac{4}{13} - \frac{1}{13} = \frac{9-3-4-1}{13} = \frac{1}{13}$

2) $\frac{41}{43} - \frac{23}{43} - \frac{4}{43} - \frac{1}{43} = \frac{41-23-4-1}{43} = \frac{13}{43}$

3) $\frac{10}{26} - \frac{3}{26} - \frac{4}{26} - \frac{1}{26} = \frac{10-3-4-1}{26} = \frac{2}{26}$

Examples of adding and subtracting fractions with the same denominator are worked out sequentially in this order. In addition to these examples, you can add various other less thought-provoking examples.

For example: $\frac{1}{22} + \frac{2}{22} + \frac{3}{22} + \dots \frac{9}{22} + \frac{10}{22}$ Is the answer in the following example a proper fraction or an improper one?

$$\frac{1}{22} + \frac{2}{22} + \frac{3}{22} + \dots \frac{9}{22} + \frac{10}{22} = \frac{1+2+3+\dots+9+10}{22} = \frac{45+10}{22} = \frac{55}{22}$$

Actions are performed as indicated above. Everyone knows that the sum of the numbers from 1 to 9 is equal to 45, and the number 10 is added to it. The answer has been formed $\frac{55}{22}$. If the numerator is greater than the denominator, then this improper fraction.

Summary:

In this article, we saw incorrect, correct and mixed fractions, addition and subtraction operations on them. Of course, it is very easy and there are no difficulties. Addition and subtraction operations on fractions with the same denominator are taught in the simplest mathematics course, which means that we cannot study any topics without it, so students who are just starting to study mathematics or elementary school students, first of all, fractions on them the sequence of actions is taught. These subjects, students who have not studied well, will face some difficulties in reducing the following subjects, therefore, it is necessary to study them thoroughly, not only in the field of mathematics, but also in all fields, paying careful attention to the basis of its beginning.

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