Reviewing: Fractions, Decimals, and Graphs

A practical discussion about the importance and relevant details regarding mathematical operations in the development of the welding professional.

Summary

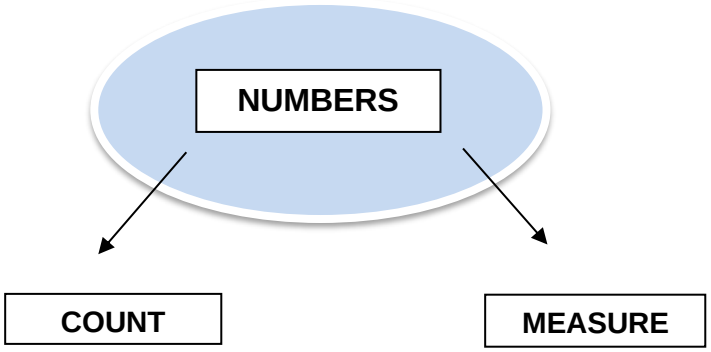
1. Introduction

The use of fractions is frequent in our daily lives: when we are making cooking recipes, when we are going to share the restaurant bill with a group of friends, when we observe the gas tank of a vehicle, as well as when we are going to weld a part, where we have to transform inches into fractions, decimal fractions and millimeters.

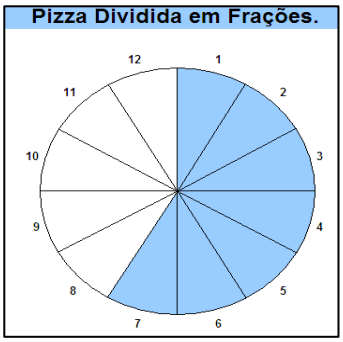
1.1 Development

Let's start this lesson with a very simple question: What are numbers for?

In a very simple way, we can say that numbers are basically used for two things:



A fraction is called a common fraction when numbers (or terms) are written on top of each other, separated by a slash or line, for example: 1/3 (one-third) or 3/4 (three-quarters). You can also represent fractions by means of graphs, such as the pie chart:

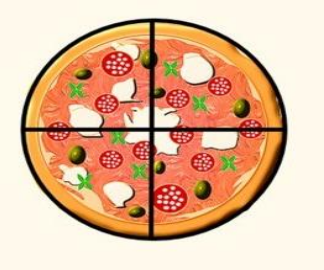


Sometimes when we try to break something into pieces and the slices are divided into different fractions, such as pizza slices. If we cut it into parts that are not the same size, each one will be left with a slice of pizza with different sizes.

So that would make a big mess, because who would get the bigger share? Or who would get the smaller part? It stands to reason that someone would come out at a loss. Therefore, a fraction is a number that expresses one or more equal parts into which a unit or integer has been divided. So, if we have a whole pizza and we divide it into four equal parts, each part will represent a fraction of a pizza, illustrated below:

Let's use the following situation as an example:

Maria bought a pizza and divided it into 4 equal slices. Since she wasn't very hungry, she ate only one slice. What fraction of pizza did Maria know?



$$\frac{4}{4} = 1$$

We see in the example figured above 4 slices of pizza that Mary had, she ate only one, i.e. 1 of 4. This can be written as a fraction as seen above.

The terms of a fraction are:

- **Numerator:** comes from the Latin *numeratus* and means "to count"
- **Denominator:** its origin is from the Latin *denominatus* and means "to give a name"

$$\frac{1}{4} \begin{array}{l} \leftarrow \text{numerador} \\ \leftarrow \text{denominador} \end{array}$$

In our example, the number 1 represents the numerator of the fraction and indicates how many parts have been taken. The number 4, on the other hand, represents the denominator of the fraction and indicates how many parts the whole was divided into.

Because you have divided the pizza into 4 equal parts, then a whole pizza corresponds to the fraction $\frac{4}{4}$.

$$= \frac{1}{4}$$

To fix the concept of fraction, let's look at one more example:

Let's think together! Let's imagine that Paul and Marcelo went to buy chocolate together and they bought the same chocolate bars, one for each of them. And when they went to eat the chocolate, a friend came and out of politeness they thought: What now? Who will share a piece of chocolate with Maria? And how big is the piece going to be? So they talked and came to the following conclusion:

So that neither of them would eat less, they decided that they would each give half of the chocolate to Maria. Therefore:

- Do you agree with this division? Why?
- How could you resolve this situation so that everyone eats equal shares?

2. Multiplying fractions by integers

To **multiply** a **whole number** by a **fraction,** we must multiply only the numerator of the fraction and repeat the denominator.

How to $a \times \frac{b}{c} = \frac{a \times b}{c}$ make:

Examples:

$$4 \times \frac{2}{7} = \frac{4 \times 2}{7} = \frac{8}{7}$$

$$\frac{6}{7} \times 8 = \frac{6 \times 8}{7} = \frac{48}{7}$$

- Fixation exercises. Multiply the following operations:

a) 2 x 5/3=

b) 7 x 3/5=

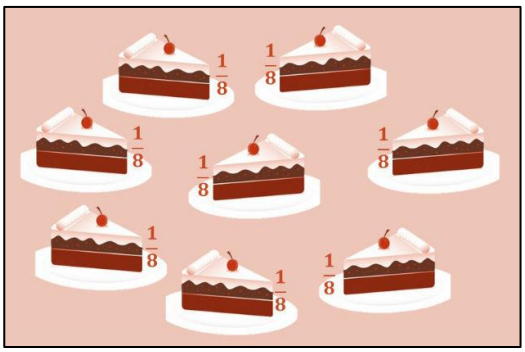
c) 8 x 7/5=

d) 13 x 5/5=

3. Sum of Fractions with the Same Denominator

When we add two numbers together, what we do is we put those numbers together, right? Adding fractions is no different, but we need to be careful. Let's think about the following problem:

My mom made a cake and divided that cake into 8 equal parts. If I ate 2/8 (two-eighths) of the cake and my sister ate 3/8, then how much of the cake did we eat?



To find out how much of the cake we eat, it is necessary to add 2/8 (two eighths) to 3/8 (three eighths). Before doing the math, we need to remember that the number at the bottom of the fraction indicates that the cake has been divided into 8 pieces. As the number of slices that the cake was cut does not change, then at the bottom of the result it will be 8.

The top, on the other hand, indicates how many slices we ate. Joining the 2 slices that I ate with the 3 slices that my sister ate, we ate 5 of the 8 slices that the cake was divided into, that is, together we ate 5/8 of the cake, as shown in the example below:

$$\frac{2}{8} + \frac{3}{8} = \frac{5}{8}$$

Therefore, to add two or more fractions that have the same denominator, simply add the numerators (top numbers) and repeat the denominator (bottom number).

- Fixation exercises. Sum the following fractions:

a) $\frac{5}{3} + \frac{9}{3} =$

b) $\frac{6}{4} + \frac{5}{4} =$

c) $\frac{12}{3} + \frac{15}{3} =$

d) $\frac{102}{5} + \frac{240}{5} =$

4. Decimal Numbers

Decimals are rational numbers (Q) that are not integers expressed by commas and have decimal places, for example: 1.54; 4,6; 8,9, etc. They can be positive or negative.

Decimal places are counted from the decimal point, for example the number 12,451 has three decimal places, i.e. three digits after the decimal point.

- Fixation exercise. Turn decimals into fractions:
  a) 0.2=
  b) 0.8=
  c) 0.25=
  d) 0.75=
  e) 0.04=

f) 0.08=

g) 0.0025=

h) 0,0075

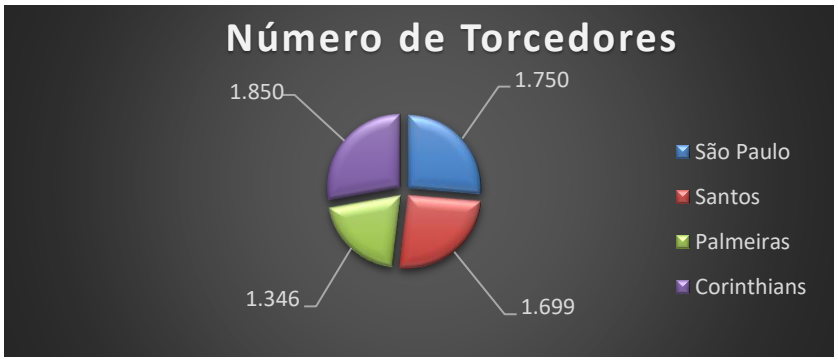
i) 0.375=

j) 0.875=

5. Graphing Definition

Graphs are visual representations used to display data, whether about certain information, or numerical values. Generally, they are used to demonstrate patterns, trends and also compare qualitative and quantitative information in a given period of time.

They are tools used in various areas of study (mathematics, statistics, geography, economics, history, etc.) to facilitate the visualization of some data, as well as to make the data clearer and more informative. For instance:



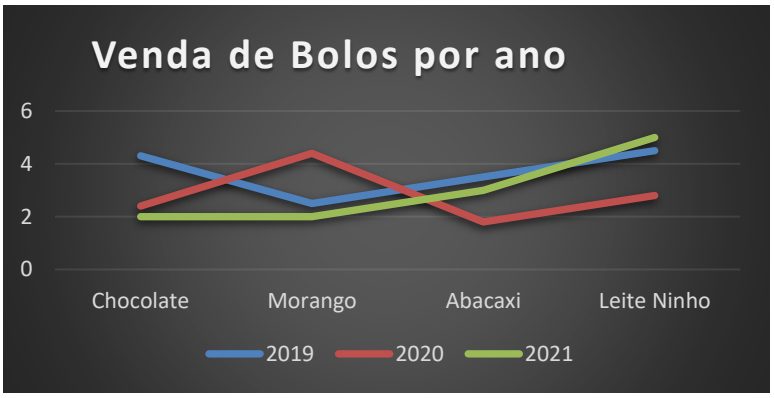
Source: Dummy data

In this way, the use of graphs makes interpretation and/or analysis faster and more objective.

Some important elements that are included in the charts are:

- **Title:** they usually have a title about the information that will be presented.
- **Source:** Many graphs, especially those in the area of statistics, show the source, i.e. where the information was taken from. They may also provide the year of publication of the cited source.
- **Numbers:** These are essential for comparing the information given by the graphs. Most of them use numbers, either to indicate quantity or time (month, year, quarter).
- **Legends:** most of the graphs have legends that help in reading the information presented. Next to it, colors that highlight different information, data or periods are used.

Another very important chart to keep in mind is the line chart. Also called a "Segment Chart", it is used to present values (numerical sequence) in a given period of time. That is, it shows the evolutions or decreases of some phenomenon.



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5.1 Types of Charts

Chart **types** include the various ways to represent some information and data, the most important of which are: column, line, pie, and area.

Understanding graphics today is an essential task, as they are very present in our daily lives, whether in newspapers, magazines, the internet, etc.

In addition, the competitions, entrance exams and the Enem, contain several questions in which the graphs are present. Thus, there is nothing more important than knowing its types and knowing how to interpret them.

6. Conclusion Regarding Mathematical Operations

Therefore, we can note that mathematics is a powerful communication tool since it can provide objective and dynamic information through fractions, decimals and graphs, as well as functions and tables, reaffirming that using the benefits of knowledge of mathematics as a tool increases the possibility of success of the professional.

Proofreading: Text Interpretation

An organized set of words, expressions, sentences of a language, which, written by an author, composes a work, book, documents, etc. The very words that one reads in an author, in a law, etc.

7. What is text interpretation?

To interpret a text means to "unravel its mysteries" in relation to the question of discourse, for this (discourse) represents the message that is now to be conveyed.

It is always good to emphasize the importance of textual interpretation, as its occurrence does not only occur in the educational environment, but also in competitive examinations in general, in professional activities. In order for us to cope with the demands of our day-to-day lives, we need to first understand them. If you don't know how to properly identify a message, how can you react to it?

Therefore, the ability to read a text, to interpret its grammatical structures (words and sentences) and semantics (meanings) results in the understanding of the message that was intended to be conveyed and what needs to be done about it.

8. How to interpret a text?

For a correct understanding and interpretation of the text, follow these steps:

a) **Slowly read the entire text.**

The first reading of the text should be done calmly and without interruptions. In the first contact with the text, the most important thing is to try to understand the overall meaning of the text and identify its objective. It is not essential to understand the entirety of the text, nor the meaning of all the words.

b) **Reread the text as many times as necessary.**

In the following readings, it will be easier to identify the main ideas of each paragraph and understand the development of the text, that is, the relationship that different ideas establish with each other.

c) **Underline the most important ideas.**

Underlining should only be done when you already have a good idea of the main idea and the secondary ideas of the text. Otherwise, there may be too many underscores, which complicates more than it helps.

d) Separate facts from opinions.

In reading the text, the reader should clearly separate what is a fact (true, objective and verifiable) from what is an opinion (personal, biased and changeable). It is also important to differentiate the ideas conveyed by the author from your own, which should not prevail over or refute the ideas conveyed in the text.

e) Return to the text as often as necessary.

There should be a return to the text for a new reading of paragraphs, sentences, expressions, when it is necessary to answer questions, identify words, expressions, phrases, punctuation, language functions. It is also important to carefully understand the statements of the questions.

f) Rewrite the content read.

To improve comprehension or memorization, many resort to rewriting the text in their own words. For this purpose, summaries, topics, outlines can be made.

9. Tips for Text Interpretation

Read these tips, so that reading and interpreting texts becomes an easier and easier process.

a) Tip 1: Read a lot and with a will. It is extremely important that there is frequent reading of various contents.

b) Tip 2: Create familiarity with the content.

c) Tip 3: Practice interpreting texts. The more practice we have in accomplishing something, the easier it will be to accomplish that same thing. It's the same with text interpretation. If the interpretation of text practiced constantly, it will become easier and easier. To do this, in any written content, practice:

- Identify main ideas;
- Relate the ideas and situations present in the text with reality;
- Summarize the main ideas of the text;
- Paraphrase the content of the text, drawing personal conclusions about the ideas presented by the author.

10. Conclusion Regarding the Practice of Text Interpretation

Due to the aforementioned facts, improving our competence in the sense of thoroughly analyzing a text is a basic requirement for the effectiveness of professional results. In this way, vocabulary enrichment, mastery of linguistic structures, as well as textual interpretation are skills acquired throughout our experience.

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