

How to Easily and Simply Use Rules in Mathematics

Mathematics is a concept that has rules. Learning the rules in mathematics and applying them to problems is the best way to master math problem solving.

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When you develop a mathematical expression, each line corresponds to the application of a rule. Therefore, there should be as many stages as rules used to develop this expression. By applying one rule at each step, we understand without much difficulty how we move from one stage to another.

Teachers often combine these rules in mathematics. They often think that using rules one at a time is a loss of time. They also may think that the simplicity of these rules will not affect a student's understanding. It is only when students have done enough exercises and understands these simple rules in mathematics that the teacher should start combining rules.

I always make my students write the applied rule for each line. If a student has the line correct but doesn't find the applied rule, then I know that the student is in trouble. That is when I focus on him/her by explaining the rules. Because when you find correct answers without knowing where they come from it is hard to work on more difficult problems. It's likely that the student is guessing. You can't learn math by guessing, but by learning and applying the rules in mathematics.

Rules have to be precise and not confusing. I have heard students say:

1. $(-2) \times (-3) = 6$ because negative and negative is positive.
2. $(-2) + (-3) = 5$ because negative and negative is positive.

Students often make these mistakes because they were not told which operation this rule applies to.

For case #1 the rule should be "When multiplying two negative numbers the answer is always a positive number".

For case #2 the rule should spell "When adding two negative numbers the answer is always a negative number".

Students are often confused when they deal with negative numbers. They don't easily understand what -2 means, and worse what the numerical expression -2-3 means. Which can also be represented as $(-2) + (-3)$. When dealing with negative numbers teachers should emphasize what they can represent: debt, loss, how many points one needs to get an A and so on.

In conclusion, the easy way of learning math is to start learning the rules in mathematics and to know which one should be applied when solving a problem. The rule should be spelled out to help self-assess if the answer is correct.

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