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Tips for an experienced tutor of mathematics to solve math problems:

As a math teacher and tutor, I have seen many students struggle with the problem of resolution of the word. Who among us does not remember having asked about two trains leaving stations different at different speeds, and asks them to understand when they meet? While some of us love this kind of problems, many others have great difficulties to deal with these questions. They often do not know where to start or what strategies should we use to try to find an answer.

This article is intended to help people who struggle with word problems, through a strategic approach and a set of tools to use when faced with these questions. Like most of the literature on problem solving, this article is mainly based on the ideas and writings of George Polya (1887-1985) a mathematician who refined many ideas to solve problems that are used today. His classic book “solve” it is a must read for the advanced student – a simplified system is provided below:

 Approach to problem solving:

Start with the assurance that you understand the problem – I cannot tell you the number of times that teachers see students turn a lot of work that does not answer the question, which was really asking. This is often heartbreaking for both the student and the teacher.

Always try to reproduce the problem in your own words. If you cannot reformulate the problem so there’s a good chance that you might not fully understand.

Be clear about what to do. Consider the information you need. Is there a lack of information? Can be found using the information presented?

Make a plan – Once you are sure you know what the question asked and what information is needed to respond, start thinking about how you are going to solve the problem.

Think, if you have seen a similar question before. If so, how do you fix it?

Solve a simpler problem – if parts of the problem are not ready to try to simplify and solve it, you know. It is a form of “divide and rule” – when you have solved part of the problem is not uncommon for the answer to the mysterious part suddenly jumps you. You can also try to simplify the data – if the numbers are too big and clumsy, and then make them smaller and simpler. This allows you to get clear on the steps and processes involved in solving the problem.

Draw a picture – often using a chart to organize information in a way that allows the brain to create new links between the pieces, and perhaps spark ideas.

List of your data – you can put in a table? Can you hold?

Can you identify a trend?

You know the formula? And ‘you know the formulas that may be relevant to the problem? Think about how you might use them in this particular case.

Can you work backwards? Sometimes the approach to a problem the other way can cause your bulb to light mental!

I guess it’s great! I guess if you can check if your estimate is close. Many of us adults were taught never imagine that when we were in school – which is unfortunate as guessing and estimation are powerful tools for troubleshooting.

Run your plan – you have your plan, then it’s time to do so. Use one of the above approaches that you think best fits the situation. Do not be afraid to drop one approach and try another if you do not seem to make progress.

Look back – is there another method?

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