

Five Steps to Improve Mathematics Problem Solving Skills

If you have trouble with mathematics problem solving skills, please read on. You are going to learn the art of problem solving in math by following only five important steps. After reading this, your mathematics problem solving skills will dramatically improve. Many of the students that I have taught at community college have learned these five steps to problem solving and I believe you will too.

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Mathematics Problem Solving Skills Tip #1-Understand the Problem

Most students have difficulty with a math problem because they do not know how to start it. In order to begin the process of solving a math problem you need to understand the problem. By understanding the problem, you know what the problem is asking for.

Mathematics Problem Solving Skills Tip #2-Identify the Knowns and Unknowns

All math problems give you information and ask you to find the unknown information. The first thing you need to write down is what you know in the problem. Then you need to write down what you do not know. This is the information you will be solving for.

Mathematics Problem Solving Skills Tip #3-Translate the Problem to Mathematical Language

Now that you have identified the knowns and unknowns in the problem, you can translate this information from English to Math. You can develop a relationship between the known information and unknown information by writing an equation with appropriate variables.

Mathematics Problem Solving Skills Tip #4-Solve the Problem

Your equation is already set up from the previous step. Now you can solve the equation by using the correct mathematical operations. Make sure that your unknown variable is by itself and that you include the right units in your final answer.

Mathematics Problem Solving Skills Tip #5-Check your Answer

You can check the validity of your answer by plugging it back into the original equation. If both sides are equal then you have solved the problem. Otherwise, you need to refer back to the previous steps to check for any errors in mathematical calculations, translation, and your overall understanding of the problem.

Remember that in order to start a math problem, you need to understand what the problem is asking for. Ask yourself: "What do I need to solve for?" Then you can identify what is given and not given. Make a table with two columns: 1. Known Variables and 2. Unknown Variables. After

identifying the known and unknown variables, write your problem in the form of an equation. Once your equation has been established, you can solve the problem. Perform the correct mathematical operations. Finally, check your answer for clarity. Does my solution make sense when I plug my answer back into the original equation?

Here's an example: Gary is driving in his car at a rate of 50 miles per hour. Two hours later, Sharon leaves Gary's house and hops on her motorcycle at a rate of 70 miles per hour. How long does it take Sharon to catch up to Gary?

Step 1: Understand the problem

What is the problem asking for? Reading the last sentence, we see that the problem wants us to know how long it takes for Sharon to catch up to Gary.

Step 2: Identify the knowns and unknowns

We know that Gary's rate is 50 miles per hour and we also know that Sharon's rate is 70 miles per hour. We also know that Sharon left two hours later than Gary. What we do not know is the time for Sharon to catch up to Gary.

Step 3: Translate the known and unknown information to mathematical language

We know that Distance is rate times the time, so $D = RT$. We can use subscripts like G for Gary and S for Sharon. Since Sharon is catching up to Gary, we know that the distances are equal. So, $D(S) = D(G)$. Then we have $R(S)T(S) = R(G)T(G)$. From Step 2: we see that $R(S) = 70$, and $R(G) = 50$. Since Sharon left two hours later than Gary, we can write Sharon's time in terms of Gary's time, which is $T(S) = T(G) - 2$. So, our equation is $70(T(G) - 2) = 50T(G)$.

Step 4: Solve the problem

We can now solve for the equation from Step 3 by using the distributive property. We have $70T(G) - 140 = 50T(G)$. Subtracting $70T(G)$ to both sides, we have $-140 = -20T(G)$. Our last step is to divide both sides by -20 to get $T(G) = 7$. This is Gary's time. But Sharon started two hours later than Gary, so we plug in $T(G) = 7$ into Sharon's time to get $T(S) = 5$ hours. Therefore, it takes Sharon five hours to catch up to Gary.

Step 5: Check your answer by plugging it into the original equation

Using $T(G) = 7$, we have $70(7 - 2) = 50(7)$. $70(5) = 50(7) = 350$, so our equation is true. By following these five simple and proven steps you'll quickly improve your mathematics problem solving skills.