

Guide to Solving Maths Problems

I. Start with a positive attitude

Do you begin each problem with an open mind?

Each problem is a new experience which will expand your ability to solve problems and increase your knowledge of the subject.



II. Survey the problem

- Read and visualise the scenario described. If relevant, draw a picture.
- Identify: what is this problem asking you to find?
- Is this problem similar to another problem that you've already solved, or does it look like an example from the textbook? Is there something similar in your notes?

Read the problem quickly to get a general feel for what you are being asked to find. Don't bog yourself down with details at the beginning. Reread the problem until you understand the end goal. Draw a diagram, chart or sketch to illustrate the problem, if possible.

III. Break the problem into parts



1. Read the problem slowly and carefully to obtain each fact or idea.
2. List in writing the given facts and unknown facts.
3. Understand the meaning of each word in the problem.
4. If possible, estimate the outcome.

Read the problem slowly and carefully. You may need to read the problem several times to understand all of the facts. Sometimes you must read the problem out loud. If the wording bothers you, read a few words at a time and ask yourself, "What does this mean?" Gain a complete understanding of the question.

IV. Work the problem one step at a time

1. Rewrite the given facts in a more organised manner.
2. Ensure any diagrams or charts show all of the given information.
3. Express the unknown in terms of a variable.
4. Write out each step.

An important problem solving skill is the ability to distinguish between facts that you know from those you don't know. Write down the required equations and formulae. Break down complex ideas into smaller parts.

V. Know where to look for help

1. Do your textbook or notes contain a similar worked example?
2. Is there someone in the class who knows the material and might help you?
3. Have you asked your teacher for extra help?

We all come across problems that we feel we are unable to solve. As part of the learning process, you must develop independent learning skills.

While the textbook, homework and class notes are readily accessible, sometimes it takes another person's perspective to shed light on the topic.

- Ask your teacher for a hint. Don't ask to have the problem solved for you – that is your job.
- See if you have some classmates you can work with. Later, attempt to rework the problem by yourself. Ensure that you completely understand each concept and can replicate the problem.

VI. Check your results

Since problems require quite a bit of time and effort, you might as well be certain that your answers are correct.

- Did you label your answer?
- Does your answer seem reasonable?
- Did you substitute your answer into the original problem?

Do not substitute your answers back into the equation unless the equation was included in the problem. If your written equation is wrong, then your solutions will also be incorrect.

Often students will find that $x = 5$ but do not know what the 5 represents. It is important to understand your answers and their significance to the problem.

