



## Stuck on a Problem?

Here is a series of tips to help you through the problem solving process or to help you discover where you went wrong when your answer isn't correct.

### Stuck Getting Started?

- Draw or imagine a picture of the problem. Place known information on the picture and think about what you're trying to find.
- Re-read the part of the chapter or notes related to the problem and see if you can improve your understanding of the concept. This will help you solve the problem more easily and strengthen your ability to do other problems involving the same concept or those that build upon it.
- Look for a similar example in your notes or textbook and follow the steps for solving the example. Any clues for how to proceed with your own problem?
- Not sure which formula to use? If you have a list of formulas from the chapter that you're working on, make a list of the known numbers (pieces of information) you have in the problem, and anything you're being asked to find. There's probably a formula in the list that only has variables from your list of "knowns" and a variable for the unknown — that's the formula you want to use.
- Some problems require multiple steps to complete. See if you can solve part of the problem. Try thinking backwards: "If I knew \_\_\_\_\_, then I could find the solution. Is there any way I can find \_\_\_\_\_ from the given information?" Start with the part of the problem you know the most about.

### Stuck Part-Way Through?

- Have you used all the information in the problem? Some of it might be there to distract you, but maybe there is a piece or two that you missed in your reading that is critical to solving the problem. Remember, sometimes the numbers you need in a problem are given in words. A car that starts "from rest" has an initial velocity of 0 m/s; a loan that gets "paid off" has a future value of \$0.
- Is there a similar problem in the assignment or in the textbook that does have an answer? If so, you can attempt to solve that problem and see if you get the right answer. Then you'll know you're on the right track.
- Walk away from your problem for a brief time (30 seconds up to a couple of minutes). Think about something else, listen to a song, or go get a snack, but try and clear your brain. Come back to the problem. Try rereading the problem from the start and see if you have any new insights or ideas.



## Got the Wrong Answer?

- If you drew a picture, compare your answer to the visual image. Does it look reasonable? (Is your calculated dimension for what should be the shortest side of a triangle somehow larger than the other sides? This would be a sign of incorrect solving).
- Double-check your work for math errors like a sign not carried over correctly, adding instead of subtracting, forgetting to multiply a term through, etc. Check each step of your calculation. Some people start over and re-work each step to find the math mistake.
- Did you answer the question you were asked? Re-read it to make sure. Quite often in long problems you can lose sight of which number in the problem is the answer. It's possible you're not wrong; you're just not finished yet.
- It's possible that you *are* finished and you're right! If your answer is a formula, but it doesn't match the intended answer, can you rearrange your formula to match the answer key? If your answer is a decimal and the answer key has a fraction, are they the same value?
- Double-check your units. Sometimes the problem may involve a factor conversion or a ratio of money/unit or distance/unit. Have you checked whether the answer requires a specific unit or combination of units? Does the problem involve multiple units that measure the same thing, like seconds and minutes? You'll probably need to convert them all to the same unit before you can work with them.
- Do your variables mean the same thing throughout your problem? Maybe your value for C changed from the cost of one item in a group to the cost of all the items in the group in your mind. Write a defining statement for the meaning of each variable at the beginning of your work, "Let C = ...", and stick to it.
- Check the textbook solution manual or check Moodle (online course material) to see if the answer key to the assignment/textbook is posted online. Some answer keys include step by step solving of the problem. Compare these steps with your own work. Even if your answer isn't there, many textbooks have paired exercises where #1 and #2 are very similar, #3 and #4 are similar, and so on. The solution to the question before or after yours might give you a clue.

If you've tried all of these (or as many of these steps) as you can and are still stuck, come see one of the tutors in the Learning Centre and we'll help you figure it out.

