

What do you do when you are stuck on a problem?

BSU student responses:

"I am worried about how to handle this type of situation (where I can't figure out where to go next) when I don't have the solutions available to help me."

RO: "Always an issue. Look at the problem. What do you know about the problem? List the Given. List the formulas that you might need. Figure out one more thing you can do, calculate, even if you are not yet sure where it will take you. Go on to the next problem and come back to this one as subsequent problems may trigger a recollection in your mind to help solve the challenging problem. Look at the answer choices, does this provide guidance? Are there any answers you can eliminate based on what you know so as to create better guessing if it comes to that."

RS: "It is always frustrating when you get stuck on a problem. However, when trouble arises, I like to re-read the problem. I will write down all the pieces of information they have given me and cross off any extra information. I will try to go back through and piece the problem together. If I still don't answer it correctly, I skip it. After a couple of other problems, I will go back to it. After I move on and come back to that same problem, I usually have a better chance at solving it. Most importantly, I try not to get too frustrated because then it impacts my performance on the remainder problems"

TS: "The steps I use for solving problems I am stuck on can vary depending on the context and time restraints I have. If I am having trouble with a homework problem, with virtually unlimited time, I try to scan the problem I write down everything that I can infer from the information given. It also helps to represent this information in different ways. For example, for some of the homework problems so far, I have used Venn Diagrams and tables to try and get a clear view of the problem details. It can also be helpful to draw the problem in steps, if there are multiple actions or computations to be considered. In problem 4 in the Actex manual for this week, I used this with some success, when the 5 black and white balls were being traded from bowl to bowl. It has also worked to write down all the formulas that apply to the problem, and try making some calculations with them, even if they might not directly relate to the solution. This can at least help get me thinking about other ways to derive the solution. Finally, it also helps a lot to step back and take a break from the problem for a while. This has helped me to get a different perspective or a new idea on how to solve it.

"On a test, the strategy can be very different. Because time can be limited, if it appears that a problem is not immediately solvable, I skip it and move on, and then come back later if possible. This alone can help me get an idea of how to solve it, but if not, then I quickly try running through possible formulas and problem details that I can use. If the

test is multiple choice, then I invest time into eliminating options if possible. If there's enough time, then I run through the steps listed above as if it was homework. "

KW: "It's good that you differentiated between scenarios in which you may or may not have enough time. When I answered the question, I didn't think to include timing into my process. On tests (especially actuarial tests!), there isn't always time to go through the entire problem-solving practice, so skipping harder questions and coming back to them later can be crucial to maximizing your score (based on the information you know). That's definitely something I'll try to keep in mind."

RO: "True and why doing lots of problems prior to the test is important so that when you get to the test you will more quickly recognize what to do."

SD: "Taking a break from the problem in an exam or homework situation is definitely something I will implement."

SD: "Rereading the problem has proved beneficial to me. Since the problems we solve can sometimes contain a lot of information, we start by writing down the given, possible equations, and drawing pictures. But, we often do not think of the implications behind the given information at first. For example, one of problems on the last test, find $P(A \text{ and } B \text{ and } C \mid (A \text{ and } B) \text{ or } (A \text{ and } C) \text{ or } (B \text{ and } C))$, was initially difficult because I didn't have all the information to solve the complex equations I had created. Then, I reread the question and noticed $P(A \text{ or } B) = 1$. From this information, I concluded that $(A \text{ or } B)$ encompassed the entire probability space and that C was a subset of $(A \text{ or } B)$. By drawing a picture of the situation I just described and using other information I found, I was able to solve the problem quickly."

JD: "When I get stuck on a problem, the thing that helps me most is drawing, graphing, or putting the problem into some sort of picture depending on what the problem is about. I am a very visual learner and when a problem is put into a picture form, I can usually figure out how to go from there to finish and solve the problem. Also, I like to look back at my notes about that certain problem and see what I did there. I like to draw out a lot of problems in my notes, so doing that can help me when I need to look back to help solve a problem. But if all that fails I look for help, whether it asking a friend for help or talking/emailing a professor when I don't understand something."

KW: "I think asking for help is a good option, especially when you don't know what else to do. Personally, that's very hard for me to do, as I'm a very independent worker/thinker. It's difficult for me to ask someone else to explain something I don't understand. Knowing your limits is very important, though."

SD: "I also find it difficult to ask questions. But, in the business world, asking questions will allow you to get to the answer faster than if you spent time trying to answer your own questions. Also, it is good to know people's areas of expertise and contact information in case you need help or want to approach a problem differently."

KW: "Whenever I get stuck on a problem, I normally start by writing down all the given information in the problem. I also write down what I'm trying to solve for. Sometimes, seeing all the known/unknown variables helps me to remember the formula(s) I need to use to solve the problem.

"If I don't get that right away, I'll try to draw a picture. Whether it's a graph, table, diagram, etc., I'll draw it out and then put as much information that I have into the picture. If the problem can be solved that way, it normally becomes much easier once it's been drawn out.

"If that still doesn't work, I'll then write down all related equations and formulas that I can think of. Sometimes, extra unknown variables will be able to cancel out if I use a series of equations."

AJ: "Whenever I get stuck on a problem I reread the problem make sure I understand exactly what it is asking and write down all information given. Then I determine what information is necessary and how I can use that information to determine the answer to the problem. If that does not help, I will try and draw graphs or rework the information given into a different form. If I stay stuck on the problem still I will move on to another problem and come back to it hopefully being able to look at it in a different way."

AR: "I have learned that when I am stuck on a problem it is best for me to skip it initially. I move on and get through the problems that I can work through easily. When I go back, I read the problem slowly and write down each piece of important information as I read it. Then I focus on what the question is asking and eliminate unnecessary information if applicable. Then I think about the different ways I could reach the end result. Usually I will try to organize the information in a way that shows me the relationships regarding what I know and what I don't know. Even if I can't get a final answer, I try to write down as many steps of the process as possible. I have learned that partial credit is much better than leaving a question completely blank!"

JW: "I find it very effective to skim through an exam or problem set and first complete the problems I know will take me the least amount of time. After I've completed those and have boosted my confidence, I move on to the more time-consuming problems.

"In general, when I get stuck on a problem, I first sit back and ask myself, "what is the problem really asking me to do"? In learning new math, I often am able to memorize a "method" for solving problems. However, I've found that if I have a conceptual understanding of the problem (and a conceptual understanding of the formulas needed to solve the problem), then I'm much less likely to get stuck. In this way, I also like to draw diagrams and create tables whenever I can to visually organize the information I have. If all of those methods fail and I am still stuck on the problem, I will either take a break from the problem and come back later with fresh eyes, or I will consult the solution. I sometimes am very stubborn and will not want to "give up" on a problem and look at the solution; however, it is very easy for me to waste a lot of time that way. I try as hard as I can to keep time in mind, even when just working on homework problems, because I know that is what is going to make the difference in me being able to pass Actuarial Exams."

RO: "One key in the exams is to be quickly able to figure out "what is the problem really asking me to do"? Part of that is study. More of that is practice, doing a lot of problems. I also find redoing problems, especially those I did not get right the first time."

CM: "I agree with [name] in that I approach problems from the homework and exam problems differently. I find that taking a break and looking at an assignment again with fresh eyes (or at least, new ones) will help me solve a problem I'm having difficulty on. Another thing I do is review my notes and I also look back into the study materials to see if I missed anything important. As far as an exam goes, I work out a few details that I know for sure (basically as much as I can) and then I move on to another problem to see what I know. When I took the FM Exam in December, I found that the problems I really knew how to do took around 2-3 minutes to complete, and when I went back to the difficult problems I had a little more time to approach the tough ones, whether or not it was through a manual technique or to think more about the potential shortcuts."

RS: "I usually have to reread every problem a couple times. If re-reading doesn't help me, I usually try to organize the information given to figure out what the question is asking. Then, I will go back and create some kind of picture, timeline, Venn diagram, etc. After my picture, I try a few different attempts at the problem. If I still can't get the correct answer, I may skip it for a couple minutes then go back to it. I'm always surprised how much that helps, because almost 90% of the time I'll see something I didn't the first time I was working on it. "

GW: "What do I do when I am stuck on a problem? Well my answer would depend on where the problem is presenting itself. If it is a problem on an exam, I skip the problem with the intention of coming back to the problem once I get through the other problems

on the exam. I have learned that you will receive a much higher grade on an exam if you first do the problems you know how to do correctly before you a third of the test time on one problem. If the problem I am struggling with is a homework problem, I will sometimes take a break from homework and give my brain some time to rest. I have found if I give myself a break and come back to the problem the following day, I almost always find success on the problem I was struggling on the previous day. Hope this helps!"

NH: "I have learned that I am a very visual learner. On almost every problem in probability, I find myself drawing a diagram, or a chart, or a table. When I get stuck, I like to experiment with different charts and drawings until one makes sense. Sometimes my illustrations are Venn diagrams or joint probability tables, but a lot of the time they are original illustrations that manipulate sample spaces in problems. Though this can take some extra time I don't always have, I am learning which graphs and charts to use in certain problems and more and more often, once I've started on an illustration, the answer clicks and I move on to the next one. "

AS: "When I get stuck on one problem I always skip it and move on. Then when I have finished all of the problems, I am fairly confident on, I go and take a break or do other homework. This gives me a chance to stop thinking about problems. Sometimes we have the information in our brains to do the problems correctly but maybe we have just been looking at numbers on a page for too long and need a break. Later I come back and usually have no trouble thinking about the problem from a different perspective. If still I cannot figure out, it is time to resolve to the solutions. However I feel that figuring out how to do a problem by using the solutions is the LEAST effective way of remembering the content."

SW: "It also seems to me that when I've solved a few problems quickly, I'll get on a roll and have high confidence, and solving problems seems easier.... After failing to solve a couple problems, it may be helpful to move on to one you know you can do and solve it just to get your confidence back up. Once confidence is back up, problems seem more doable."

RO: "Warming up for an athletic event is very important. I would suggest that warming up is important in test taking also. In taking a test, I will look at a problem. If I can immediately answer it I do, otherwise I skip it and come back later. Frequently, I find a later problem triggers something that helps solve an earlier problem. Now the time I skipped the first nine questions of a test I was getting real nervous. Fortunately, number 10 was easy and I eventually answered all the questions and passed the test."

CP: "When I get stuck on a problem, particularly when working on homework, I like to look at another example of the same type to see how I should set up the problem. If I am unable to find a similar problem, I make sure to write down every piece of information I have, writing each piece in different ways, if possible. From there, I try to see what connections I can make to help me get to my unknown. If there is one thing over the course of the last couple of semesters I have learned it is how to manipulate formulas to make them work to your advantage."

RO: "Finding similar problems is good advice. How did I solve that one and what, if anything, is the twist in this one."

AS: "I don't know how many times I have given up on a problem, looked at the solution, and then noticed that the first step was just writing down (regurgitating) all the info you know. Definitely worth the time."

KM: "I often find myself writing down the given information and just staring at my paper. It's easy to find what the problem is saying (well, most of the time) but then we're left with the problem of what to do with it. If I have absolutely no direction to go, sometimes I draw a picture (time line, table, Venn diagram, whatever I think will help). Other times, I simply look at what's given and if I can think of any way that they're related at all, I'll write it down. It's not always easy to know where to go, and sometimes just writing down the relationships of certain data can help hash out where all of it can lead."

"Another thing I've found myself doing when I'm stuck is writing out what I'm looking for in words. If I write out what I'm looking for, it helps me think of the pieces I need to get there, and then sometimes I have a realization of what information I can put together to get these."

RO: "Good. Another thing to consider is a formula sheet. Does the given relate to any of the formulas? What section are we in and what is the author trying to get us to understand (and apply). Sometimes this creates, "oh, of course"."

SW: "Like Mr. Owens suggested last year, I usually just try to find what I can when I'm stuck on a problem. I'll take the given information and find something else from it, even if it may not help in solving the problem. Sometimes that little bit of extra information is needed, and sometimes it just helps to see which direction to move in. Another thing I do is to work backwards from the information you are asked to find. For example, in a question asking to find $P(A' \& B')$, I might do the following: $\text{FIND } P(A' \& B') = P((A \cup B)') = 1 - P(A \cup B)$ "

RO: "Working backwards, good, I'll need to add that to my list. One part of looking backwards maybe looking at the answers to see what is there. At times, I've busily worked on doing a calculation when all the question wanted was a formula,

not the calculation. Take a quick peek at the answers; it may save you some time."

SW: "That is true. Also, when answers are in fraction form, I sometimes calculate them out in decimal form so I can just match mine up with the appropriate response without bothering to get my fraction/answer in the exact same form as the given. I think that can save time on occasion, too."