Approaching the Math “Problem”

• **BELIEVE IN YOUR OWN ABILITIES!**  
  Difficulties in math are frequently a consequence of self doubt not of actual ability. Believe you can succeed, and you will!

• **MATH IS ABOUT DOING!**  
  o Focus on problem solving and technique.  
  o PRACTICE! PRACTICE! PRACTICE!

• **MATH IS CUMULATIVE!**  
  (What you don’t understand today, will affect you tomorrow.)  
  o Attend every class.  
  o Keep on top of your assignments. (Do a little every day.)  
  o Get help when you need it, DON’T WAIT!

• **WRITE MORE NOT LESS!**  
  When working through a math problem, write out ALL of your steps. The more you write, the less likely you are to make a simple error and the easier it will be to identify where any mistakes might have occurred.

• **BE WILLING TO MAKE MISTAKES!**  
  It is through analyzing our mistakes that real growth is made. If you make a mistake, discover where the error lies. Then you will know not to make it the next time. (USE PENCIL!)

• **ASK QUESTIONS!!!** Asking about what you do not understand is the key to success in mathematics.  
  o Ask questions in class, if appropriate.  
  o See your professor during office hours.  
  o Visit the tutoring center.  
  o Ask a classmate.  
  o Form a small study group (no more than 4 people).

• **DON’T JUST MEMORIZE THE EXAMPLES.**  
  o Understand WHY each step must be used to solve a problem.  
  o Ask yourself “expert” questions.  
  o Be able to explain the concepts, examples, and equations in your own WORDS.
EXPERT QUESTIONS*

Questions to ask when you’re learning a new mathematical concept or as you’re solving a new problem.

• What would I guess the answer or result should be?

• What is each step of the solution accomplishing?

• What’s the pattern here?

• If this changes, what else will change?

• What happens at “the extremes”?

• Can I generalize this result?

• What are the “special cases”?  

• How can this question be rephrased?

• What are the essential features of this problem?

• What other types of problems or techniques does this remind me of?

• How many different ways can I solve this problem?

• Can I derive the formula?

• How can I make this concept more tangible?