

Suggestions for Approaching Mathematics in your Courses

Definitions. Construct examples. Make diagrams. Construct non-examples by relaxing various conditions.

Theorems. Restate them. Make simple examples. Make complicated examples. Make diagrams. Test the validity of the theorem when certain of the hypotheses are relaxed. Consider the validity of the converse. Generalize the theorem. Verbalize connections with other mathematics in the course—how does it fit in? Consider further mathematical questions that are suggested by the existence of this theorem.

Proofs. Make outlines. Make diagrams. Construct a “sufficiently complicated example” with which to follow along the proof.

The Course. Verbalize how the course fits together as a whole. What are the major themes? How do the topics connect and flow together? Consider an outlining strategy: Make detailed marginal notes from which you can reconstruct the mathematics of the notes. Then make a coarser outline from which you can reconstruct the marginal notes. Then make a brief outline from which you can reconstruct the coarser outline.

Study. Read the suggestions from Joy Williams and Frank Branner in

<http://www.ms.uky.edu/~math/Grad/handbook-archive/handbook-06.pdf>.