

Learning Outcomes for Modern Algebra II, MATH-41001

Knowledge

Define main algebraic structures involved (groups, cyclic groups, subgroups, quotient groups, rings, integral domains) and formulate their properties; define group and ring homomorphisms and formulate their properties; formulate main results proved in the course, in particular, Lagrange's theorem and its corollaries.

Comprehension

Understand the construction of the quotient group and the role of normal subgroups in that construction; give examples of all the algebraic structures involved in the course; understand the proofs of the main results proved in the course, in particular, Lagrange's theorem and its corollaries.

Application

Solve a variety of problems related to material covered; understand main theorems and properties and constructions of group theory when applies to the permutation or the dihedral group as well as other examples.

Analysis

Analyze structure and properties of particular groups and rings. Use examples to make conjectures about general situations; break complicated problems into small parts and relate them to the results proved in the course.

Synthesis

Apply new material to matrices, complex numbers, and other structures learned earlier in Linear Algebra, Calculus and other Classes.

Evaluation

Be able to decide how to approach a particular problem or example, based on previous experience and knowledge. Understand that a problem may have a few correct solutions.

Class Activities

Solve problems, prove theorems, apply theorems and other results to concrete examples.

Out of class Activities

Work on weekly homework assignments.