

Winter Quarter Algebra Initiative
Major topics of the course

Each topic may be addressed either in a concrete situation or as pure mathematics problem.

1. Solution of systems of linear equations.
2. Graphs of linear equations
3. What does it mean to have no or infinitely many solutions
4. Solution of systems of linear inequalities (in one unknown)
5. Solution of systems of linear inequalities (in two unknowns)
6. absolute value including solutions of inequalities and equations in one or two variables
7. Finding exact solutions; finding approximate solutions graphically
8. Normal forms
9. Properties of quadratic functions and their graphs
10. Solutions of quadratic equations (factoring, completing the square, quadratic formula)
11. representing functions by formulas, graph, table
12. Transformation of quadratics and the effect on the graph
13. understanding the logic of equation/inequality solutions
14. the zero product property and other properties of the real numbers
15. minimizing or maximizing quadratic functions
16. the function notion

A good study technique would be to find at least one problem from the homework or from the CME text that addresses each of these topics and solve it. Some of the topics are broad enough so that you should look at several different problems. Look for connections between the various topics. Often the same concrete situation can be mathematized in several different ways. Look for examples.