

Concepts to know Final Exam

- Lines
 - Intercepts
 - Point Slope Formula
 - Finding equations of lines
 - Graphing
 - Linear Modeling
- Cost, Revenue, and Profit Equations
- Break even Values
- quadratic functions
 - vertex
 - open up/down
 - maximum/minimum
 - revenue function from the demand function
- Solving systems of equations
 - Substitution method
 - Subtraction/addition method
 - Gauss-Jordan Method
 - rref
 - Matrices
 - Different types of answers
 - * No solution
 - * Exactly one solution
 - * Infinite solutions.
 - Written in parametric form.
 - Placing restriction on the parameter.
- Row reduced form
- Matrix Operations
 - Addition
 - Subtraction
 - Multiplication
 - Equality
 - Scalar multiplication
 - Transpose
- Translating word problems to systems of equations.
- Inequalities.
- Shading the feasible region.
- Bounded or unbounded feasible region.
- Setting up a Linear programming problem.
Be sure to define the variables.
- Inequalities
 - Graphing
 - Shading for the feasible region.
 - Manipulation
- Solving Linear programming problems.
 - Graphing method
 - * feasible region
 - * Corner points
 - * How to find a solution.
- Simplex method
 - Setting up the initial matrix
 - Reading off the solution
 - Reading off the surplus.
 - doing the Simplex method. (pivoting)
 - Be able to explain how the simplex method work.
- Set operations.
- Subsets and Elements.
- Translating sets to English.
- Translating English to sets.
- Filling in a Venn Diagram
- Shading Venn diagrams
- Counting
 - Venn Diagrams
 - Tables
 - Trees
 - Multiplication Principle
 - Combinations
 - Permutations
 - Counting what you want by counting what you don't want
 - Formulas.

- Probability
 - Sample space
 - Events
 - Outcomes
 - Equally likely (uniform sample space)
 - Mutually exclusive
 - Probability formulas section 7.3
 - Venn diagrams
 - Trees
 - tables
- All problems like those on the handouts
- Conditional probability
 - Reduced sample space
 - Formula
 - Backwards tree
- Independent Events
 - Test for independence: Two events, A and B, are independent if $P(A \cap B) = P(A)P(B)$
 - Using the concept of independence
- Random variables
 - Finite Discrete
 - Infinite Discrete
 - Continuous
 - Probability distribution
- Histogram
- Mean, Median, Mode, Variance, Standard Deviation
- Expected Value
- Fair game
- Odds
 - in favor of E
 - against E
- Probability from Odds
- Bernoulli Trials (Binomial Distribution)
 - mean, standard deviation
 - expected value
- n, p, q, r
- Normal Distribution
 - conversion from X to Z.
 - The standard normal random variable.
- Calculator commands
 - binomialpdf
 - binomialcdf
 - normalcdf
 - invnorm
 - rref
 - linreg
 - 1varstats
- compound interest
- simple interest
- annuities
- equity
- amortization schedules
- effective yield or effective rate of interest
- Markov Chain information
 - transition matrix
 - distribution state(vector)
 - finding the m^{th} distribution state given X_0
 - regular transition matrix
 - steady state for a Markov chain
- Any additional topic discussed in class.