

## **Mth126 Final Exam Review Topics**

*(Refer to previously distributed materials, plus prior exams, for sample problems)*

Topics from Unit 1 (Counting and Probability):

- Combinations and permutations
- The Fundamental Counting Principle
- Tree diagrams for modeling compound events
- Counting and Probabilities with And, Or, and Not
- Probability of A given B; Independent events
- Expected value

Topics from Unit 2 (Statistics and Data Analysis)

- Comparing two data sets visually (dot plots, stem and leaf, box plots)
- Descriptive statistics (measures of center, measures of variability, five-number summary)
- Calculating the mean absolute deviation and the standard deviation (formulas provided).
- Calculating z-scores, finding probabilities using the Normal Table (Table 10)
- Confidence intervals for opinion polls (margin of error =  $1/\sqrt{n}$ )
- Confidence intervals when standard deviation is given (mean  $\pm (z^*)(\text{stdev})$ )

Topics from Algebra

- Linear equations and applications
- Solving linear systems (elimination & substitution methods)
- Linear programming (solving systems of inequalities to find feasible set, then testing vertices)
- Finding the maximum or minimum of a quadratic function by finding the vertex (there are many applications); typically done by completing the square.
- Solving quadratic equations (that is, finding the x-intercepts)
  - Factoring (including CFQ and Factor by Grouping!), completing the square, quadratic formula.
- Interpreting distance-time graphs, etc.