Final Examination Details

The final exam for MTH 128 is on Tuesday, May 8, 2012 at 6:45–8:45 PM in Kennedy Auditorium. The exam is comprehensive and will cover all of the topics listed below.

- Students with a conflict, should notify their professor no later than Tuesday, May 1, 2012.
- Calculators will be allowed on the final exam.
- Cell phone use is not permitted in or out of the classroom during the final exam. If you bring your cell phone to the exam venue, please remember to turn it off. Violation of this policy will be considered as academic dishonesty and dealt with accordingly.
- Be sure to bring your student ID.

Studying and Reviewing

- There will be a course wide review session for the Math 128 final on Thursday, May 3 at 5:30–6:30 PM in Math 357.
- You should try working some of the problems in the review sections of Chapters 8–10, 12, and 13.
- Be sure to take advantage of the office hours, SI sessions, and the AARC.
Topics Covered on the Final Exam

• To understand and be able to apply the basic properties of points, lines, and planes (Section 8.1).

• To understand and be able to apply the basic properties of angles (Section 8.1).

• To understand and be able to apply the basic properties of polygons (Section 8.2).

• To understand and be able to apply the basic properties of triangles, quadrilaterals, and circles (Section 8.3).

• To understand and be able to apply the basic properties of pairs of angles such as vertical angles and supplementary angles (Section 8.4).

• To understand and be able to apply the basic properties of parallel lines and their relationship to angle pairs (Section 8.4).

• To understand and be able to apply the sum of angles in a polygon, especially the sum of the angles in a triangle. In particular, the sum of the measures of the interior angles of any convex polygon with $n$ sides is

$$180n - 360 = 180(n - 2)$$

(Section 8.4).

• To understand and be able to apply the ideas of geometry in three dimensions (Section 8.5).

• To understand the regular polyhedra and their properties (Section 8.5).

• To understand and be able to represent shapes from different perspectives (Section 8.6).

• To understand and be able to draw geometric objects (Section 8.6).

• To understand and be able to identify three-dimensional objects from two-dimensional representations (Section 8.6).

• To understand and be able to apply transformations such as flipping, sliding, and rotating to geometric objects (Section 9.1–9.2).

• To understand and be able to apply congruence (Section 9.1).

• To understand and be able to perform basic geometric constructions with a straight edge and compass including the following (Section 9.3).

  – Congruent line segments.
  – Congruent angles.
  – Congruent triangles.
  – Angle and line segment bisectors.
  – Perpendicular and parallel lines.

• To understand and be able apply similarity (Section 9.5).
• To be able to construct similar figures (Section 9.5).

• To understand and be able to apply the basic properties of linear measurement and volume. (Section 10.1).

• To understand and be able to apply the English and Metric systems for linear measurement and to be able to convert measurements given in one system to the other system (Section 10.1).

• To understand and be able to apply the concepts of area and perimeter (Section 10.2).

• To understand and be able to apply circumference and arc length (Section 10.2).

• To understand and be able to use a geoboard to find areas of certain polygons (Section 10.3).

• To understand and be able to find the areas of triangles, rectangles, parallelograms, and trapezoids (Section 10.3).

• To understand and be able to find the areas of regular polygons, circles, and sectors of circles (Section 10.3).

• To understand and be able to use the Pythagorean Theorem and its converse (Section 10.4).

• To understand and be able to find the surface area of various polyhedra, cylinders, cones, and spheres (Section 10.5).

• To understand and be able to use English and metric measures of volume and mass (Section 10.6).

• To understand and be able to find the volume of various polyhedra, cylinders, cones, and spheres (Section 10.6).

• To understand how scale factors affect length, area, and volume, and to be able to apply this knowledge (Section 10.7).

• To understand how data collection methods differ and how they affect the nature of the data set (Section 12.1).

• To understand and be able to evaluate different design studies (Section 12.1).

• To understand and be able to analyze data using graphs and tables (Section 12.2).

• To understand how graphs and tables of data can sometimes be misleading (Section 12.3).

• To understand and be able to analyze data using measures of central tendency—mean, median, and mode (Section 12.4).

• To understand and be able to find percentiles (Section 12.5).

• To understand and be able to analyze data using measures of spread—range, variance, and standard deviation (Section 12.5).

• To understand and be able to apply the 68%–95%–99.7% Rule (Section 12.5).

• To understand and be able to apply the definitions of experiment, outcome, and sample space(Section 13.1).
• To understand and be able to predict the probability of outcomes of simple experiments (Section 13.1).

• To understand and be able to apply the rules of probability. (Section 13.2).

• To understand and be able to apply the definition of complementary and mutually exclusive events (Section 13.2).

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• To understand and be able to simulations to make and test conjectures about probabilities (Section 13.2).

• To understand and be able to apply the Fundamental Counting Principle (Section 13.3).

• To understand and be able to apply the definition of permutation (Section 13.3).

• To understand and be able to apply the definition of combinations (Section 13.3).

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• To understand and be able to probabilities for simple compound events (Section 13.4). If $A$ and $B$ are independent events, then

\[ P(A \text{ and } B) = P(A) \cdot P(B). \]

If $A$ and $B$ are dependent events, then

\[ P(A \text{ and } B) = P(A) \cdot P(B \text{ given } A). \]

• To understand and be able to calculate expected value (Section 13.5).