Math 202.2 Review for Exam I Friday, February 8, 2008

**Tools** to bring to the exam: Compass, straightedge, and protractor. The test will cover the class activities, homefun, suggested problems from the text, and material from the class textbook MET regarding Chapter 8. Below is a list of the major ideas that will be assessed on this Exam; sometimes, next to some of the topics are suggested problems or pages that you may refer to for examples. All pages listed below come from the MET Textbook.**Note:** No scrap paper, calculators, cell phones, or other electronic devises are allowed during the exam

1. Section 8.1 Visualization
   
   (a) Vocabulary: point, line, plane, ray line segment
   (b) Given a pattern for a shape, visualize the resulting 3-dimensional shape: # 1-3 pg 387-388; Activity 8A
   (c) Visualize 2-dimensional shapes made by slicing a 3-dimensional shape: # 7 & 8 pg 389 MET; Activities 8B & 8C
   (d) Explain phases of the moon by visualizing its position in its rotation: # 4-6 pg 388-389; Activity 8F

2. Section 8.2 Angles
   
   (a) Vocabulary: perpendicular lines, parallel lines, normal line, angle, protractor, degree, right angle, congruent angles, acute angle, obtuse angle, supplementary angles, alternate interior angles, alternate exterior angles, corresponding angles
   (b) Postulate and Theorem: Parallel Postulate and Vertical Angle Theorem
   (c) Be able to measure angles or estimate the measure of angles using a protractor: # 2 & 3 pg 404-405
   (d) Understand the relationships between angles created when two parallel lines are cut by a transversal and use these relationships to find the measures of angles in diagrams: #4 & 5 pg 408; # 2 & 3 pg 412
   (e) Describe routes using distances and angles & be able to construct such routes given the description: #8 pg 406; # 4 & 6 pg 412; Activity 8K
   (f) Use the idea of walking around a triangle to explain why the sum of the angles in a triangle is 180 degrees and the sum of the exterior angles of a triangle is 360 degrees: # 10 pg 406; Activity 8L
   (g) Use Parallel lines to explain why the angles in a triangle sum to 180 degrees: Activity 8J
   (h) In your own words, explain clearly why the sum of the angles in a triangle must always add to 180 degrees: Activity 8I, 8J, and 8L
   (i) Use the fact that the angle of incidence equals the angle of reflection to solve problems about reflections in mirrors: # 12 and 13 pg 406; Activity 8P

3. Section 8.3 Circles and Spheres
   
   (a) Vocabulary: Circle, sphere, radius, diameter, compass
   (b) Use the definition of a circle and a compass to solve problems: # 2-4 pg 422; # 1-4 pg 423; Activity 8T
4. Section 8.4 Triangles, Quadrilaterals, and Other Polygons

(a) Vocabulary: Triangle, right triangle, hypotenuse, equilateral triangle, isosceles triangle, scalene triangle, polygon, the diagonal of a polygon, regular polygon, quadrilateral (square, rhombus, rectangle, parallelogram, trapezoid, kite), pentagon, hexagon, octagon, n-gon, regular n-gon, Venn diagram

(b) Postulates and Theorems: Triangle Inequality and the sum of the measures of the angles in an n-gon is 180(n – 2).

(c) Use a compass to construct isosceles triangles, equilateral triangles, triangles of specified side lengths, and rhombuses (and explain why it works): # 3 & 4 pg 430-431; # 5 & 7 pg 434; Activity 8W

(d) Use a compass and straightedge to explain why some sets of triangle lengths will not produce a triangle (that is be able to explain the triangle inequality): # 6 pg 434; Activity 8W # 7

(e) Use Venn Diagrams to show relationships between polygons: # 5-8 pg 431; # 13 & 14 pg 437; Activity 8AA

(f) Identify relationships between shapes: Activity 8Z

(g) Match quadrilaterals to their properties and be able to explain how you know when a quadrilateral does NOT always have a particular property: handout with table of properties of shapes filled out in class, pg 429 with properties listed in text; # 9 & 10 pg 431; # 16 pg 438; Activity 8CC

(h) Use the fact that angles of a triangle sum to 180 degrees to investigate sums of the interior angles of other polygons: # 11 pg 436

5. Section 8.5 Constructions with Straightedge and Compass

(a) Vocabulary: straightedge, midpoint, bisect, perpendicular bisector, angle bisector

(b) Construct a perpendicular bisector and an angle bisector using a straightedge and compass: constructions in textbook pg 439-440; # 1 & 2 pg 441

(c) Construct regular polygons using only a compass and a straightedge: # 5 & 6 pg 443; Activity 8EE

(d) Explain why the construction of a perpendicular bisector and an angle bisector work using properties of rhombuses: # 3 pg 441; Activity 8DD

6. Section 8.6 Polyhedra and Other Solid Shapes

(a) Vocabulary: Polyhedron, polyhedra, face, edge, vertex, prism, right prism, oblique prism, base, cylinder, right cylinder, oblique cylinder, pyramid, right pyramid, oblique pyramid, cone, right cone, oblique cone, platonic solid, tetrahedron, cube, octahedron, dodecahedron, icosahedron, convex

(b) Count the faces, edges, and vertices of polyhedra: Problems 10-12 pg 452; Activity 8HH

(c) Draw accurately measured nets that will form certain polyhedra: # 2 & 3 pg 450; # 3 & 5 pg 452; Activity 8FF # 2-5

(d) Identify the kinds of polyhedra formed from certain patterns: # 1 & 4 pg 449; Activity 8FF # 1)

(e) Explain why there can only be the five platonic solids discussed in class: Activity 8KK