MA 202-01 Chapter 9	**Test 1** 19 June 2001	Score	Name: _____

Instructions: Answer the questions on the test paper. Show all of your work.

1. If an angle has measure 27° 44', find the measure of the supplementary angle. *(7 points)*

2. Draw a convex hexagon and all of its diagonals. How many diagonals does it have? *(7 points)*

3. Explain the differences between the three terms *line*, *ray*, and *line segment*. Draw examples of each. *(7 points)*

4. If two distinct planes have three distinct points in common, what conclusion can you make about the three points? Explain. *(7 points)*

5. For each of the following, draw the requested figure or state that it is not possible. *(5 points each)*

   a. a trapezoid with two right angles

   b. an equilateral triangle that is obtuse

c. a pair of angles that share their vertex but which are not adjacent

d. a closed curve that is not simple

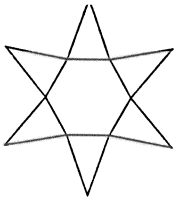
e. a quadrilateral that is not convex

f. a convex octagon

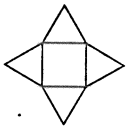
6. In a regular pentagon, what is the measure of each interior angle and each exterior angle? Explain. *(7 points)*

7. How many regular polyhedra are there? Identify them by name. Pick three of them, and sketch them by drawing the edges. Use dashed or dotted lines for the edges that are hidden by faces. *(7 points)*

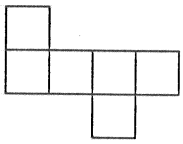
8. Name each polyhedron that can be constructed using the following nets. *(7 points)*



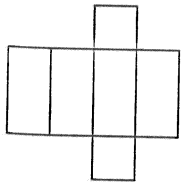
(a)



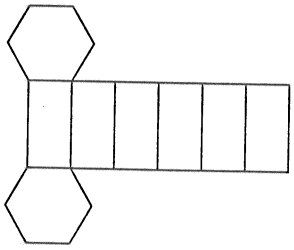
(b)



(c)



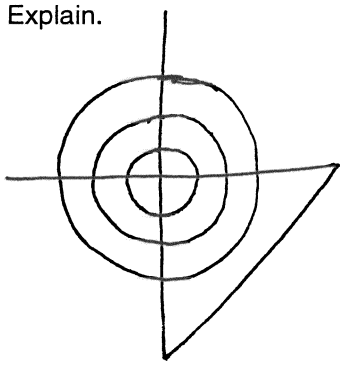
(d)



(e)

9. Determine the measure of the two non-right angles in home plate: a convex pentagon with three right angles and two other congruent angles. Begin by drawing a diagram. *(7 points)*

10. Can the following figure be drawn in one continuous motion of a pencil without retracing any edges? Explain.



11. Among the many rooms in an old mansion, there is a ghost in each room that has an even number of doors. If the mansion has only one entrance, a person entering from outside can always reach a room in which there is no ghost.

    Illustrate this by drawing a few possible floor plans for such a house with, say, 4 or 5 rooms. After several examples, you will see why this works for *any* such house. For testing purposes, you need only illustrate this for three houses. *(7 points)*