1) The figure below show the assembly situation for the first problem. Two plates (labeled A and B) are to be assembled using two pins (shown below). The two pins are different diameters on each end. The nominal diameter of each end is given in the figure. Both pin/hole assemblies are fitted. The fit for the 5/8 inch nominal diameter assembly is RC6 and the fit for the 1/2 nominal diameter is FN2.

Calculate the following:

Dimension of the holes in plate A written as limits:

Dimension of the holes in plate B written as limits:

Dimension of the 5/8 nominal diameter pin written as limits:

Dimension of the 1/2 nominal diameter pin written as limits:

Allowance of the RC6 fit: ____________

Loosest fit between the 5/8 nom. dia. pin and hole: ____________

Allowance of the FN2 fit: ____________

Loosest fit between the 1/2 nom. dia. pin and hole: ____________

Type of assembly (fixed or floating)? ____________

What is the positional tolerance for:

Plate A: ____________

Plate B: ____________

What is the “true position” tolerance value? ____________
Now consider the same assembly with the only change being that plates A and B now contain three holes each rather than two and that three pins will be used.

For this new assembly scenario:

What is the positional tolerance for:

Plate A: ____________
Plate B: ____________

What is the “true position” tolerance value? ____________

2) The second assembly situation involves using bolts and nuts to clamp two plates together. The assembly is depicted in the figure at below left. Each of the plates labeled A in the figure are identical and a top view of the plate geometry is shown below. In order to calculate the solutions to this problem, you will need the information in the Pos Tol Sample Data file found on the course webpage.

The nominal diameter for the bolt and nut is 1/2 inch. A clearance of 1/32 inch is specified for the hole.

Answer the following:

What is the basic size of the bolt? ____________
What is the basic size of the hole? ____________
What are the limit dimensions for the bolt?
What are the limit dimensions for the hole?
What is the allowance of the fit between the bolt and the hole? ____________
What is the positional tolerance for hole location on Plate A? ____________
What is the “true position” value? ____________