Math 3305 Homework

Chapter One

1.1   no homework
1.2   from the text #1, #4, #6 and one from Ms. Leigh

1. Given that Germany is in Europe and that Japan is in Asia, state
    the truth value of each of the following sentences:
    A. Germany is in Europe and Japan is not in Asia
    B. Germany is in Europe or Japan is not in Asia

4. Fill in the following truth table to illustrate that ~(~P) and P always
    have the same truth value. This will show that these are logically
    equivalent to each other:

P	~P	~(~P)
T		
F		

6.   Consider the following sentence, which is true in Euclidean
Geometry: If angle C in Triangle ABC is a right angle, then the
measure of angle A is less than 90 degrees.

A.   State the converse. Is the converse true?

B.   State the contrapositive. Is the contrapositive true?

C.   State the inverse. Is the inverse true?

1.2 Ms. Leigh's Problem One

SMSG Axiom 14 says:

If two angles form a linear pair, then they are supplementary.What is
the contrapositive to this axiom and what is its truth value?

1.3   #6 from the text and two from Ms. Leigh

6.

The perimeter of a triangle is the sume of lengths of its three sides. Find the perimeter of the triangle with vertices at the three points (0, 1), (2, 1), and (0,3). What strategies did you use to do this?

1.3 Ms. Leigh One

Find the equation of the line through (2, 5) and (4, 3) the new way and check your work.

1.3 Ms. Leigh Two

Find the rational mixed number that is very near $\sqrt{39}$.

1.4 and 1.5   From the review problems #2 and #8 plus two from Ms. Leigh

2. Make a truth table with 7 columns and 5 rows counting the top row. The first two columns are P and Q with the standard truth value set up down the next 4 rows.
The headings on the next 5 columns are ~P, ~Q, Q $\wedge$ (~P), ~(Q $\wedge$ (~P)), and (~Q) $\vee$ P. Fill in the truth values for each one in the rest of the table.

8. In the xy plane let P be the point with coordinates (7, 9) and let Q be the point with coordinates (11, -3). Find the equation of the line through both P and Q in standard form Ax + By + C = 0.

1.4 Ms. Leigh One

Find the distance from (1, 3) to (6, 10) in exact square root form and then find a nearby rational mixed number using our new technique.

1.4 Ms. Leigh Two

Given a pentagonal pyramid, predict the Euler number. Find the number of faces, edges, and vertices and calculate the Euler number; show your work and an exploded sketch on this. Cutting out one and putting it together one will help.