CSCE 235 **Fall 2000**

Homework #4 (Due Monday, Nov. 6, 00)

Question 1: Find the quotient q and the remainder r (i.e. find q and r such that $a = qb + r$, where $0 \leq r < |b|$), for

(i) $a = 5286$, $b = -19$.

(ii) $a = -5286$, $b = 19$.

Question 2:

(i) Find the greatest common divisor and the least common multiple of $a = 8416$ and $b = 3719$. Also, find two integers m and n such that $gcd(a, b) = ma + nb$.

(ii) Use (*depend only on that*) your answer to part (i) to do the same for:

a=8416, b=-3719.

a=-8416, b=3719.

a=-8416, b=-3719.

Question 3:

(i) Find -125,617 (mod 315).

(ii) Find $0 \leq r \leq 10$ such that $317 \equiv r \pmod{11}$

(iii) Find $0 \leq r \leq 10$ such that $-317 \equiv r \pmod{11}$

(iv) to which equivalence class does 317 belong? And to wich equivalence class (mod 11) does -317 belong?

(v) Find $0 \leq w, z \leq 10$ such that $\overline{317} = \overline{w}$ and $\overline{-317} = \overline{z}$ (of course, here everything is (mod 11).)

Question 4: Find all values of x (if any), $0 \leq x < 6$, which solve the following conqruence equation:

$$4x^2 + 3x + 2 \equiv 0 \pmod{6}$$

Question 5: Solve the following congruence system:

$2x + 3y \equiv 3 \pmod{7}$

$3x + 5y \equiv 4 \pmod{7}$