CSCI 1900 - Homework 6-B

**Section 4.1: Properties of the Integers** *(19)*

1. For the integers *m=33, n=9,*determine the integers *q* and  *r (0 ≤ r < n)* such that   
   *m = q\*n + r.* (2)
2. For the integers *m=117, n=13,*determine the integers *q* and  *r (0 ≤ r < n)* such that   
   *m = q\*n + r.* (2)
3. For two integers, *a=* 210 and *b*=198, use Euclid’s algorithm to find the greatest common divisor of *a* and *b*. (1)
4. For two integers, *a=* 252 and *b*=660, use Euclid’s algorithm to find the greatest common divisor of *a* and *b*. (1)
5. For two integers, *a=* 165 and *b*=1547, use Euclid’s algorithm to find the greatest common divisor of *a* and *b*. (1)
6. For two integers, *a=* 210 and *b*=198, use the result of 3 to determine the least common multiple of *a* and *b*. (1)
7. For two integers, *a=* 252 and *b*=660, use the result of 4 to determine the least common multiple of *a* and *b*. (1)
8. If *f* (*x*, *a*) is the function  *x* mod *a*, compute
   1. *f* (26,7)
   2. *f* (63,5)
   3. *f* (140,11)
   4. *f* (97,2)
9. Convert the following numbers in base 10 to base 8
   1. 44 (1)
   2. 120 (1)
   3. 1727 (1)
10. Convert the following numbers in base 10 to base 16
    1. 78 (1)
    2. 1018 (1)
    3. 4641 (1)
11. Convert the following numbers as indicated
    1. (77)10 to base 2(1)
    2. (243)5 to base 10(1)
    3. (2731)10 to base 7 (1)
    4. (4ACE)16 to base 10(1)
    5. (1011)2 to base 10 (1)
    6. (377)8 to base 10 (1)