

**COS 335 Spring 2010**  
**Assignment 6 Due Tuesday March 29**

For the following programs you can start from scratch with skel.asm or you can modify an existing example program such as math.asm or prime.asm. Problem 1 is actually a relatively simple modification of prime.asm

**Please paste NASM listing files into a word processor, and print landscape with Lucida Console 10 pt or Courier New 10 pt font.**

**1. (3 pts)** Write a program that prompts the user to enter a number N, determines whether N is prime and then prints N followed by either " is prime", or "= X \* Y " where X and Y two factors you found, for example:

634621 = 13 \* 48817  
488171 is prime

Submit your program listing as assembled by NASM. Example command line:

```
nasm -l hw6-1.txt -f win32 hw6-1.asm
```

Submit a screen dump of output for 1929071527 and 844717

**2. (3 pts).** Write an assembler program that prompts the user to enter two integers and then evaluates the following expression:

$$x^3 - y^2 + 3x^2 y - 4xy^2 + y - 2x - 1$$

Submit your program listing assembled in NASM and a screen dump of output for x = 5, y = -3 and x = 1234, y=4321

**3. (4 pts.)** An iterative version of Euclid's algorithm for finding the greatest common divisor of two positive integers can be expressed as follows in C/C++. Note that % is the modulo operator.

```
unsigned int GCD(unsigned int x, unsigned int y){  
    unsigned int n;  
    do {  
        n = x % y;  
        x = y;  
        y = n;  
    } while y > 0;  
    return x;  
}
```

Write an assembler program that prompts the user to enter two integers, computes the GCD and then displays a result, for example:

The GCD of 289344 and 2382 is 6

Submit your program listing assembled in NASM and a screen dump of output for 83846 and 2366, 9685368 and 664422, 99 and 19