

**Math 331 Spring 2006**  
**Assignment 2: Due by Feb 6**

1. Let  $n$  and  $m$  be integers, and let  $an + bm = 1$  for some integers  $a$  and  $b$ . Prove that  $n$  and  $m$  are relatively coprime.
2. By using the Euclidean algorithm, find integers  $a$  and  $b$  such that

$$168a + 60b = \gcd(168, 60).$$

3. Find all the integers  $x$  which are solutions to

$$7x \equiv 4 \pmod{10}.$$

4. Find the smallest positive integer which leaves remainder 1, 1, 1 after dividing by 5, 7, 9, respectively.
5. Solve the linear system

$$x \equiv 12 \pmod{25}$$

$$x \equiv 20 \pmod{30}.$$