

## Assignment 7

1. The smallest prime number greater than 50 is:  $\boxed{53}$
2. The smallest natural number  $n$  which is a perfect square, and is divisible by 3, 4, 5 and 6 is:  $\boxed{900}$
3. Suppose  $n$  is a natural number such that  $n \equiv 1 \pmod{4}$ ,  $n \equiv 2 \pmod{9}$  and  $n \equiv a \pmod{6}$  where  $0 \leq a \leq 5$ . The value of  $a$  is:  $\boxed{5}$
4. The smallest natural number  $n$  such that  $n \equiv 0 \pmod{27}$ ,  $n \equiv 1 \pmod{5}$  is:  $\boxed{81}$
5. Let  $p$  be a prime number and  $a, b$  be integers. Suppose  $ab \equiv 0 \pmod{p}$ , then either  $a \equiv 0 \pmod{p}$  or  $b \equiv 0 \pmod{p}$ .
  - True.
  - False
6. Let  $a, b$  be distinct natural numbers. Let  $n$  be a natural number which is divisible by  $a$  and by  $b$ . Then  $n$  is divisible by  $ab$ .
  - True.
  - False
7. Let  $n_1 > n_2$  be natural numbers satisfying the properties:  $n_1 \equiv n_2 \pmod{13}$  and  $n_1 \equiv n_2 \pmod{14}$ . Choose all the true statements.
  - $n_1 \geq n_2 + 182$ .
  - $n_1 \geq n_2 + 27$ .
  - $n_2 \geq 15$ .
  - $n_1 \leq 364$ .