

Discrete Structures TR11 – Number Systems Quiz

Name and ID:

1. Write the decimal number $(40)_{10}$ in its binary (base-2) and its ternary (base-3) representations.

2. Write the twelve decimal numbers $(1)_{10}, (2)_{10}, \dots, (12)_{10}$ in their base-6 representation.

3. Which number is larger $(212)_4$ or $(100110)_2$?

4. In the base-14 system: $A = 10$, $B = 11$, $C = 12$, and $D = 13$. What is the decimal value of the number $(BAD)_{14}$?

5. Characterize **all** base-3 numbers that are not multiples of 3 (i.e., those not divisible by 3).

6. What is the effect of appending 1 to the end of a base-7 number x ?
Examples: $x = (254)_7$ becomes $(2541)_7$ and $x = (6452)_7$ becomes $(64521)_7$.