1. Write the decimal number \((22)_{10}\) in its binary (base-2) and its ternary (base-3) representations.

\[
22 = 16 + 4 + 2 = 1 \cdot 2^4 + 0 \cdot 2^3 + 1 \cdot 2^2 + 1 \cdot 2^1 + 0 \cdot 2^0
\]
\[
\Rightarrow (22)_{10} = (10110)_2
\]

\[
22 = 2 \cdot 9 + 3 + 1 = 2 \cdot 3^2 + 1 \cdot 3^1 + 1 \cdot 3^0
\]
\[
\Rightarrow (22)_{10} = (211)_3
\]

2. Write the decimal numbers \((1)_{10}, (2)_{10}, \ldots, (10)_{10}\) in their base-4 representation.

\[1, 2, 3, 10, 11, 12, 13, 20, 21, 22, 23, 30\]

3. Which number is larger \((321)_4\) or \((111001)_2\)?

\[
(321)_4 = 3 \cdot 4^2 + 2 \cdot 4^1 + 1 \cdot 4^0 = 48 + 8 + 1 = 57
\]

\[
(111001)_2 = 1 \cdot 2^5 + 1 \cdot 2^4 + 1 \cdot 2^3 + 0 \cdot 2^2 + 0 \cdot 2^1 + 1 \cdot 2^0 = 32 + 16 + 8 + 1 = 57
\]

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

\[
(CAB)_{13} = 12 \cdot 13^2 + 10 \cdot 13^1 + 11 \cdot 13^0 = 2028 + 130 + 11 = (2169)_{10}
\]