**Assignment 1**

**Due, Wednesday, September 7, 2022 for maximum 100%**

**Thursday, September 8, 2022 for maximum 90%**

**Friday, September 9, 2022 for maximum 80%**

**Saturday, September 10, 2022 for maximum 70%**

**Deliverables**

To complete this assignment, submit this completed document to Webcourses.

All work **MUST** be shown to receive **FULL** credit for this assignment. If only the answers are provided, the assignment will receive a **maximum** of **50%** of the total points available.

Be sure to include the base in the converted values (e.g. 101012, 2110, 638)

Suggested methods for showing work include the conversion table and binary place value chart provided in lecture 5\_DigitalNumberSystem.pptx. Use of table formatting is **NOT** required.

**Examples**

1. Convert binary number 101012 to its decimal equivalent

|  |  |  |
| --- | --- | --- |
| **Step** | **Binary Number** | **Decimal Number** |
| 1 | 101012 | ((1 × 24) + (0 × 23) + (1 × 22) + (0 × 21) + (1 × 20))10 |
| 2 | 101012 | (16 + 0 + 4 + 0 + 1)10 |
| 3 | 101012 | 2110 |

Answer: 2110

1. Convert decimal number 2910 to its binary equivalent

|  |  |  |  |
| --- | --- | --- | --- |
| **Step** | **Operation** | **Result** | **Remainder** |
| 1 | 29/2 | 14 | 1 |
| 2 | 14/2 | 7 | 0 |
| 3 | 7/2 | 3 | 1 |
| 4 | 3/2 | 1 | 1 |
| 5 | 1/2 | 0 | 1 |

Answer: 111012

1. Binary place value chart; convert decimal number 2910 to its binary equivalent

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Base 10 number | 512 | 256 | 128 | 64 | 32 | 16 | 8 | 4 | 2 | 1 |
| 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 |
| 2910 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 |
|  |  |  |  |  |  |  |  |  |  |  |

Answer: 111012

**References**

1. 5\_DigitalNumberSystem.pptx
2. ASCII\_CharacterChart.pdf

**Assignment tasks**

1. Convert decimal 5110 to binary

Answer:

1. Convert binary 1111101001002 to decimal

Answer:

1. Convert decimal 197110 to octal

Answer:

1. Convert octal 63058 to decimal

Answer:

1. Convert decimal 202210 to hexadecimal

Answer:

1. Convert hexadecimal C9716 to decimal

Answer:

1. Convert hexadecimal 9F116 to binary

Answer:

1. Convert octal 64028 to binary

Answer:

1. Convert alphanumeric ASCII “Computer Architecture Concepts” to binary (do **NOT** include the double quotes)

Answer:

1. Convert alphanumeric ASCII “Computer Architecture Concepts” to hexadecimal (do **NOT** include the double quotes)

Answer: