# Homework 1

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CS270 Fall 2020

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## 1 Practice Problems 2.17, 2.19, 2.24, 2.29, 2.47

(2.17)

| Hexadecimal | Binary | $B2U_4(x)$ | $B2T_4(x)$ |
|---|---|---|---|
| 0xA | 1010 | $2^3 + 2^1 = 10$ | $-2^3 + 2^1 = -6$ |
| 0x1 | 0001 | $2^0 = 1$ | $2^0 = 1$ |
| 0xB | 1011 | $2^3 + 2^1 + 2^0 = 11$ | $-2^3 + 2^1 + 2^0 = -5$ |
| 0x2 | 0010 | $2^1 = 2$ | $2^1 = 2$ |
| 0x7 | 0111 | $2^2 + 2^1 + 2^0 = 7$ | $2^2 + 2^1 + 2^0 = 7$ |
| 0xC | 1100 | $2^3 + 2^2 = 12$ | $-2^3 + 2^2 = -4$ |

(2.19)

| x | $T2U_4(x)$ |
|---|---|
| -1 | 15 |
| -5 | 11 |
| -6 | 10 |
| -4 | 12 |
| 1 | 1 |
| 8 | 8 |

(2.24)

| Original | Truncated | Original | Truncated | Original | Truncated |
|---|---|---|---|---|---|
| 1 | 1 | 1 | 1 | 1 | 1 |
| 3 | 3 | 3 | 3 | 3 | 3 |
| 5 | 5 | 5 | 5 | 5 | 5 |
| C | 4 | 12 | 4 | -4 | -4 |
| E | 6 | 14 | 6 | -2 | -2 |

(2.29)

| x | y | x + y | $x +_5^t y$ | Case |
|---|---|---|---|---|
| 10100 | 10001 | 100101 | 00101 | 1 |
| 11000 | 11000 | 110000 | 10000 | 2 |
| 10111 | 01000 | 111111 | 11111 | 2 |
| 00010 | 00101 | 000111 | 00111 | 3 |
| 01100 | 00100 | 010000 | 10000 | 4 |

(2.47)

## 2 Homework Problems 2.77

## 3 L2_show-bytes.c