

Practice Problem 2.6 (solution page 181)

Using `show_int` and `show_float`, we determine that the integer 2607352 has hexadecimal representation **0x0027C8F8**, while the floating-point number 3510593.0 has hexadecimal representation **0x4A1F23E0**.

- Write the binary representations of these two hexadecimal values.
- Shift these two strings relative to one another to maximize the number of matching bits. How many bits match?
- What parts of the strings do not match?

| | | | | | | | | |
|---------------|------|------|------|------|------|------|------|------|
| Hex digit | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Decimal value | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| Binary value | 0000 | 0001 | 0010 | 0011 | 0100 | 0101 | 0110 | 0111 |
| Hex digit | 8 | 9 | A | B | C | D | E | F |
| Decimal value | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Binary value | 1000 | 1001 | 1010 | 1011 | 1100 | 1101 | 1110 | 1111 |

Figure 2.2 Hexadecimal notation. Each hex digit encodes one of 16 values.

- A. $0 \times 0000000000010011110010001111000$
 $0 \times 4A1F23E0$
 $01001010000111110010001111100000$
- B. $0000000000010011110010001111000$
 $0100101000010011110010001111000000$
- C. Only the most significant 1 bit of the integer is not in the floating point number. ^{2 bits}