COSC 290

Class Exercises #4

1. We are using the simple model for floating point representation which is a 14-bit format, 5 bits for the exponent with a bias of 15, a normalized mantissa of 8 bits, and a single sign bit.

Show step by step how the computer would represent the following numbers using this floating-point format

* 1. 0.9062510
     1. Convert it into a binary number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
     2. Normalize this binary number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
     3. Fill up the fields

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |

* 1. – 22.7510

1. Convert it into a binary number
2. Normalize this binary number
3. Fill up the fields

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
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1. **Arithmetic Modulo 2**

Find the quotients and remainders for the following division problems using modulo 2 arithmetic operation.

* 1. 1011011102 ÷ 10112  b. 11001100112 ÷ 101012 c. 1111001001112 ÷ 1001012