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Homework 4

1. 1. 0xCCCC + 0x0055 = 0xCD21
   2. 0xAAAA - 0x22EE = 0x87BC
2. Two hexadecimal digits represent the content of one byte.
3. Hexadecimal is an attractive number system for computers in that it is more human friendly than binary, while still being easy to convert between the two.
4. X = 5ED4, Y = 07A4, X – Y = ?
5. 4365 – 3412 = ?
6. -7110+(-12210)= carries = 01. There will be overflow despite the sign bit being correctly negative because there are carries left over.
7. Causes overflow due to there being a remainder (the result being greater than 15). The same is true for this case:.
8. 1.0102X2-3+(-1.1012)X2-2 = 1.0102X2-3+(-1)X(11.012)X2-3=1.0102X2-3+(0.112)X2-3= = 1.1012X2-3
9. 0x7F8E0004 = NaN
10. 0x0C350000 = 1.39x10-31
11. -55.125 = 111011100100000000000000000000000
12. 510 X 310 = 1510 = 0000 1111

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| --- | --- | --- | --- | --- |
| Iteration | Step | Multiplier | Multiplicand | Product |
| 1 | Initial values | 0101 | 0000 0011 | 0000 0000 |
| 1 | 1 => Prod = Prod + Mcand | 0101 | 0000 0011 | 0000 0011 |
| 1 | Left Multiplicand | 0101 | 0000 0110 | 0000 0011 |
| 1 | Right Multiplier | 0010 | 0000 0110 | 0000 0011 |
| 2 | 0 => No operation | 0010 | 0000 0110 | 0000 0011 |
| 2 | Left Multiplicand | 0010 | 0000 1100 | 0000 0011 |
| 2 | Right Multiplier | 0001 | 0000 1100 | 0000 0011 |
| 3 | 1 => Prod = Prod + Mcand | 0001 | 0000 1100 | 0000 1111 |
| 3 | Left Multiplicand | 0001 | 0001 1000 | 0000 1111 |
| 3 | Right Multiplier | 0000 | 0001 1000 | 0000 1111 |
| 4 | 0 => No operation | 0000 | 0000 1100 | 0000 1111 |
| 4 | Left Multiplicand | 0000 | 0001 1000 | 0000 1111 |
| 4 | Right Multiplier | 0000 | 0001 1000 | 0000 1111 |