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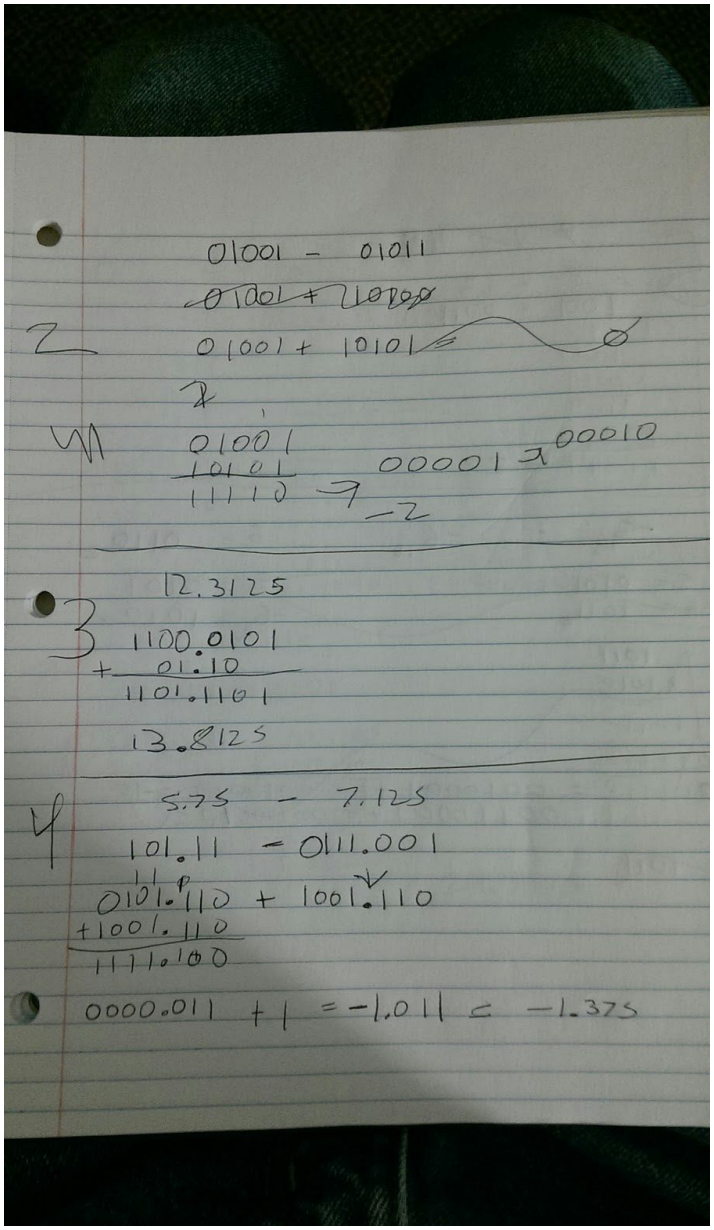
Problem	Operation	To Binary	Answer in Binary	Answer in Decimal
1	$91_{10} + C6_{16}$	$01011011_2 + 11000110_2$	100100001_2	289_{10}
2	$11_8 - 11_{10}$	$01001_2 - 01011_2$	11110_2 *(2's complement)*	-2_{10}
3	$12.3125_{10} + 0110_{I2Q2}$	$11000101_{U4Q4} + 0110_{U2Q2}$	11011101_{U4Q4}	13.8125_{10}
4	$5.75_{10} - 7.125_{10}$	$0101110_{U4Q3} - 0111001_{U4Q3}$	0011_{I1Q3}	-1.375_{10}
5	$9_{10} * 3_{10}$	$1001_2 * 0011_2$	11011_2	27_{10}
6	$-5_{10} * -6_{16}$	$1111\ 1011_2$ * (sign extend) $1111\ 1010_2$	00011110_2	30_{10}
7	$9.5_{10} * 2.625_{10}$	$1001100_{U4Q3} * 10101_{U2Q3}$	110001111_{U5Q4}	24.9375_{10}
8	$-1.25_{10} * 3.5_{10}$	$1111\ 111011_{I8Q2} * 0000\ 001110_{I8Q2}$	1011101_{I4Q3}	-4.375_{10}

Scratch Work Below



01001 - 01011

~~01001 + 10100~~

2 — 01001 + 10101

1

4 — 01001
10101
11110 → 00001 → 00010
−2

12.3125

3 — 1100.0101
+ 01.10
1101.1101

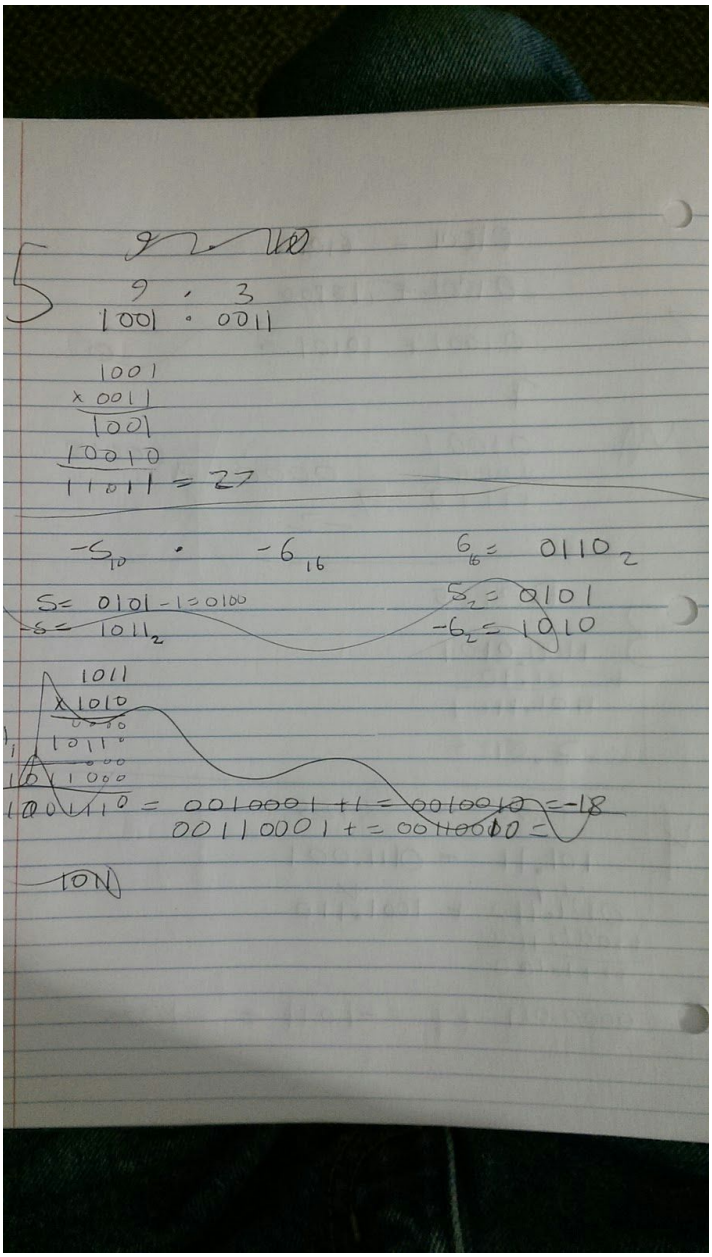
13.8125

5.75 − 7.125

4 — 101.11 = 0111.001

1 1 1
0101.110 + 1001.110
+1001.110
1111.100

0000.011 + 1 = −1.011 < −1.375



9 : 3
1001 : 0011

1001
× 0011
1001
10010
11011 = 27

$-5_{10} \cdot -6_{16}$

$6_6 = 0110_2$

$5 = 0101 - 1 = 0100$
$-5 = 1011_2$

$5_2 = 0101$
$-6_2 = 1010$

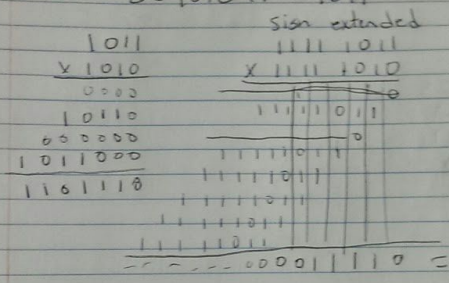
1011
× 1010
0000
1011
1011
1101110 = 0010001 + 1 = 00100010 = -18
00111001 + 1 = 00111010 =

TON

6 $5 = 0101$ $6 = 0110$

$-5 = 1010 + 1 = 1011$ $-6 = 1001 + 1 = 1010$

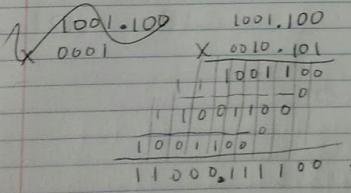
sign extended



$= 30$ (wow!)

7 $9.5_{10} \cdot 2.625_{10}$

$1001.100 \cdot 0010.101$



$= 24.9375$

8

$-1.25 = -2 + .75 = -2 + \frac{1}{2} + \frac{1}{4}$

$3.5 = 0011.1$