Bit Manipulation. Part 1

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AND
OR
XOR
NOT
LSL
LSR
— Bitwise operations.

a = 8
b = 12
c = a OR b

AND: 00001000 & 00001100 = 00001100

FYI only.

a = 00001000

NOT a = 11110111

Unsigned Integer = 247
Signed Integer = −9

−126 + 119 = −9

AND clear 1→0
OR set 0→1
XOR flip 0→1, 1→0

63 | 100
66 | 118

LDD 65
OR #18
STO 66

A = 65
B = 66

128 64 32 16 8 4 2 1 — WORTH
0 1 0 0 0 0 0 1
0 1 0 0 0 0 1 0
7 6 5 4 3 2 1 0 — position

ACC (Bin) ACC (Dec)
01100100 100
OR 00010010 MASK.
01111010 118

a = 97
A = 65
32

01100001
01000001
01100001

LDD 100 ACC(Bin) ACC(Dec)
OR #32 01000001 65
STO 101 01100001 97
END.

100 | A
101 | a

01000001
OR 00100000 MASK
01100001

LDD 101
AND #223
STO 100
END.

ACC (B) ACC (Dec)
01100001 97
✓ 01000001 65

01100001
AND 11011111
01000001

2's Complement

LDD 100
XOR #255
INC
STO 101
END

100 | +20
101 | −20

+50 | −20
−50 | +20

100 | +20

+50: 00110010
−50: 11001110

00010100 ← −50
XOR 11111111 ← MASK.
11101011
00000001
11101100 ✓ +20

+20: 00010100
−20: 11101100

1's Complement

00010100 +20
11101011 Inverse
00000001 Add 1.
11101100 −20