Problems
Signed Magnitude

no	Signed Magnitude	Number (8bit)	Signed mag	no
−5	1 101	1 0000101	1010	−2
+69	(64ᵗʰˢ) 0 1000 101	0100 0101	1 10101	−21
−37	1 100101	1 0 100101	00	+0
−23	1 10111	1 0010111	10	−0
+0	0000 → 00	00000000	0	X
−8	11000	10001000	1	X
−27	111011	1001000	1000011	−3
−43	1101011		111	−3
+8	01000		1010101	−21
−0	1000 → 10		000	+0

fill it

$$69 \rightarrow 1000101$$
64 32 16 8 4 2 1

$$37 \rightarrow 32 + 5$$
1100101

$$1 1 0 1 0 1$$
−ve 16 8 4 2 1
$$16 + 4 + 1 \rightarrow 21$$

$$1010101$$
−v 16 + 4 + 1

1's Complement

no	1's Comp	8 bits No extension	1's Comp	no
-5	•1010	<u>1 1 1 1</u> 1010	1010	-5
+69	<u>0</u>1000101	01000101	110101	-10
-37	1011010	<u>1</u>1011010	00	+0
-23	101000	<u>11</u>101000	10	-1
+0	00	00000000	0	X
-0	<u>11</u>	1111 1111	1	X
-8	10111	<u>1 1 1</u>10111	1000011	-114
-27	100100	<u>11</u>100100	1111	-0
-43	1010100	<u>1</u>10101000	101101	-18
+8	01000	0000<u>0</u>1000	000	+0

-5 → +5
0101 ↵
1010 ←1's Comp

-37 → +37
0100101
1011010

1010 Take 1's Comp → <u>0101</u> → 5

110101 → 001010 → 10

Number → -ve add
1's
→ +ve add of

11111010
00000101 → -5

1111
0000
____

0101 → 5

10
01

2's Complement

No	2's Comp	No extension	2's Comp	No
−5	1011	1111 1011	1010	−6
+69	01000101	01000101	110101	−11
−37	1011011	1101 1011	00	+0
−23	101001	11 101001	10	−2
+0	00	0000 0000	0	X
−0	00	0000 0000	1	X
−8	1000	1111 1000	10000011	−125
−27	100101	111 00101	1111	−1
−43	1010101	1 1010101	101101	−19
+8	01000	00 001000	000	+0

−5 → +5 → | 2nd method   Same as 1's Comp

0101

1010 +
_____
1011

2nd method
−5
↙
−8+3
1011

−37

−64+27

−8 → 1000

−23
−32+8+1
101001

1010
0101
1+
_____
0110

1010
↙↓↓
−8+2 = −6

1010
−   1
_____
1001 → 0110

$$\cancel{1}\overset{8}{0}|\overset{2}{0}|1$$

$$-16 + 4 + 1$$

$$= -11$$

$$10$$

$$-2$$