

Things to memorize about sign and magnitude, 1's and 2's complement

1. Positive numbers ALWAYS start with a zero.
2. Negative numbers ALWAYS start with a one.
3. Positive numbers in 1's and 2's complement look EXACTLY like the same value in sign and magnitude.
4. Be sure to have enough bits to represent the number. This can be determined from the word range formulas for 1's and 2's complement. For sign and magnitude you need enough bits to express the magnitude and then add a sign bit.

Decimal	Binary – sign and magnitude	1's complement	2's complement
+17	0001 0001	0001 0001	0001 0001
-17	1001 0001	1110 1110	1110 1111
+32	0010 0000	0010 0000	0010 0000
-32	1010 0000	1101 1111	1110 0000