

Operations and results	Description of step
\$ n = 00000000 01000000 00011011 01111001	Initial input
\$ m = ~(1 & (n >> 31)) + 1 \$ n = (~m & n)   (m & ~n) 00000000 01000000 00011011 01111001	Find the absolute value
\$ n >> 16 00000000 00000000 00000000 01000000	Shift right by half the block: 16 bits
\$ !(00000000 00000000 00000000 01000000) 1	Check if the result is nonzero
\$ 1 << 4 16	Check how many bits we now know we need at least by shifting our result left by 4. If there was a 1, it's 16 — otherwise it's 0.
\$ n = n >> 16 00000000 00000000 00000000 01000000	Shift our tracked number (initially the original input) by the above:
\$ n >> 8 00000000 00000000 00000000 00000000	We start iteration 2 and shift right by half the block: 8 bits
\$ !(00000000 00000000 00000000 00000000) 0	Check if the result is nonzero
\$ 0 << 3 0	How many extra bits do we need? If there was a 1, it's 8 more bits — otherwise it's 0
\$ n = n >> 0 00000000 00000000 00000000 01000000	Shift our tracked number by the above:
\$ n >> 4 00000000 00000000 00000000 00000100	We start iteration 3 and shift right by half the block: 4 bits
\$ !(00000000 00000000 00000000 00000100) 1	Check if the result is nonzero
\$ 1 << 2 4	How many extra bits do we need? If there was a 1, it's 4 more bits — otherwise it's 0
\$ n = n >> 4 00000000 00000000 00000000 00000100	Shift our tracked number by the above:
\$ n >> 2 00000000 00000000 00000000 00000001	We start iteration 4 and shift right by half the block: 2 bits
\$ !(00000000 00000000 00000000 00000001) 1	Check if the result is nonzero
\$ 1 << 1 2	How many extra bits do we need? If there was a 1, it's 2 more bits — otherwise it's 0
\$ n = n >> 2 00000000 00000000 00000000 00000001	Shift our tracked number by the above:
\$ n >> 1 00000000 00000000 00000000 00000000	We start iteration 5 and shift right by half the block: 1 bit
\$ !(00000000 00000000 00000000 00000000) 0	Check if the result is nonzero. This is
\$ 0 << 0 0	How many extra bits do we need? If the result was a 1, it's 1 more bit — otherwise it's 0
\$ n = n >> 0 00000000 00000000 00000000 00000000	Shift our tracked number by the above:
\$ 16 + 0 + 4 + 2 + 0 + 1 23	Sum up all our findings and add 1 more bit for negative values. We thus need 23 bits.