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Quiz #1 – Solution

1. There were 3 variants of the quiz featuring different numbers.
   This solution is for the number "-54."
   - Positive 54 = (32+16+4+2) = (2^5+2^4+2^2+2^1) = binary " 110110".
   - Padding to 8 bits: binary "00110110".
   - Converting to two's complement requires adding a sign bit (already done in padding to 8 bits), then negating the number.
   - Negating involves inverting all bits (binary "11001001") and adding 1.
     -54 = binary "11001010".

2. We graph the serial transmission of the byte "11001010" with even parity. For even parity, the parity bit is chosen so as to make the total number of "1"s in the data byte and parity bit be even. Since our data byte already has an even number of "1"s, the parity bit is "0". We transmit LSB…MSB followed by parity (we also accepted parity preceding the data byte).