Suppose that Alice uses RSA to encrypt and send the same message \( m \) to Bob, Carl, and Dan. Their RSA public keys are, respectively, \((n_B, e_B), (n_C, e_C)\), and \((n_D, e_D)\), where \( n_B, n_C, \) and \( n_D \) are relatively prime, but \( e_B = e_C = e_D = 3 \).

**Question 1:** Why is \( m^3 < n_B n_C n_D \)?

**Question 2:** How can Eve compute \( m \) exactly using the Chinese Remainder Theorem, and *without* factoring \( n_B, n_C, \) or \( n_D \)?

**Question 3:** Let \( n_B = 26, n_C = 33, n_D = 35 \). Eve sees the encrypted messages 25 sent to Bob, 29 sent to Chuck, and 13 sent to Dan. Use the algorithm you found in Question 2 to find \( m \).