

Ans: Let the two numbers be n and $\text{rev}(n)$ (reverse of n).

• Since, the no. of digits in n is 17, which is odd, $\therefore \boxed{n_9 = \text{rev}_9}$

• $\therefore n_9$ and rev_9 are same, \therefore their parity is same. So, their sum must be even, if $c_8 = 0$ (c_i : carry at i th posn.)

• $\therefore c_8$ must be 1, to make sum at ~~ninth~~ ninth posn. odd.

• Suppose rev_8 and n_8 have opposite parity. $\therefore \text{rev}_{10}$ and n_{10} have opposite parity (Obvious)

• To make 8th posn. odd, we must have $c_7 = 0$.

• Suppose $c_9 = 1$. $\therefore \text{rev}_{10}$ and n_{10} have opposite parity, their sum must be even in this case.

• Let $c_9 = 0$. Now, sum at 10th posn is odd, but $c_{10} = 1$ in this case.

• Suppose rev_7 and n_7 have opposite parity. $\therefore \text{rev}_{11}$ and n_{11} have opposite parity.

• Since rev_{11} and n_{11} have opposite parity, $c_{10} = 1$, \therefore sum at 11th posn. must be even.

• \therefore Let rev_7 and n_7 have same parity, also then rev_{11} and n_{11} have same parity.

• Now, sum at 11th posn. is odd.

• $\therefore \text{rev}_7$ and n_7 have same parity, $\therefore c_6$ must be 1 to make sum at 7th position odd.

• Suppose rev_6 and n_6 have opposite parity, $\therefore \text{rev}_{12}$ and n_{12} have opposite parity. $\therefore c_5 = 0$, to make sum at 6th position odd, $c_{11} = 0$ to make

sum at 12 position odd. Now, $\therefore c_6 = 1$, $\therefore c_{12} = 1$ (prev carries are 0).

• Suppose rev_5 and n_5 have opposite parity, $\therefore \text{rev}_{13}$ and n_{13} have opposite parity, and sum at 13th posn. is even.

• $\therefore \text{rev}_5$ and n_5 have same parity, rev_{13} and n_{13} have same parity, sum at 13th posn. is odd.