Repeating Decimals In The Form: .abbb…, .abccc…, .abcddd…, etc.

A. To change repeating decimals of this pattern to fractions follow these steps:

    1. To find the numerator, take the digits that are NOT repeating and subtract this value from these digits plus one more.

    2. The first digit of the denominator is 9 followed by the same number of 0's as the number of non-repeating digits.

        Ex [1] .12333... = _____(fraction)

          a. The numerator is 123 - 12 = 111.

          b. The denominator is 900.

          c. The fraction is $^{111}/_{900}$ which reduces to $^{37}/_{300}$.

          d. The answer is $^{37}/_{300}$.

        Ex [2] .2444... = _____(fraction)

          a. The numerator is 24 - 2 = 22.

          b. The denominator is 90.

          c. The fraction is $^{22}/_{90}$ which reduces to $^{11}/_{45}$.

          d. The answer is $^{11}/_{45}$.

B. If the repeating digit is a 9, then the problem becomes easier:

    1. Add 1 to the non repeating digits to get the decimal form of the answer.

        Ex [1] .4999... =_____(fraction).

          a. Add 1 to 4 to get 5. The decimal form of the answer is .5. So the answer in a fraction is $^{1}/_{2}$.

        Ex [2] .74999...=_____(fraction).

          a. Add 1 to 74 to get 75. The decimal form of the answer is .75. So the answer in a fraction is $^{3}/_{4}$.