

Practice problems on Number Systems

1. Convert the following hexadecimal number to its binary

59B

Ans: To convert from hexadecimal to binary, we look at each digit in the hexadecimal number and then convert each hex digit it to its corresponding binary number in groups of 4 bits (i.e. since $2^4 = 16$)

 $\frac{5}{0101}$ $\frac{9}{1001}$ $\frac{B}{1011}$ \longrightarrow 0101 1001 1011

2. Convert the above hexadecimal number to its octal (i.e. base 8) representation.

Ans: From 1., we have the binary number: 0101 1001 1011

To convert to octal, we group the binary number in groups of 3 bits (i.e. since $2^3 = 8$) starting from the right:

010 110 011 011

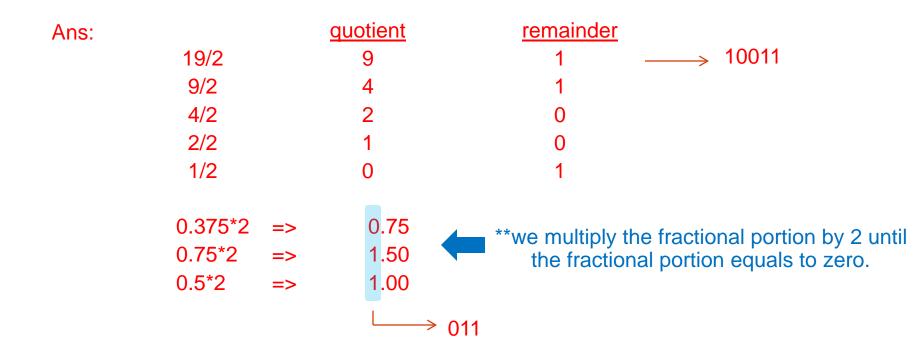
Hence, we have: 2 6 3 3

So, 59B in hexadecimal is 2633 in octal



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3. Convert the decimal number 19.375 to its unsigned binary.



Hence, 19.375 in decimal is 10011.011 in binary