Computer Science G12

1. Write the decimal number 2718.281828 as a sum of powers of 10. Sol.: $2 \cdot 10^3 + 7 \cdot 10^2 + 1 \cdot 10^1 + 8 \cdot 10^0 + 2 \cdot 10^{-1} + 8 \cdot 10^{-2} + 1 \cdot 10^{-3} + 8 \cdot 10^{-4} + 2 \cdot 10^{-1} + 8 \cdot 10^{-2}$.

2. Proceeding analogously, write the following numbers as sum of powers of their respeective bases and provide their decimal expression.

   (a) $AD.AFEA$ as hex number.

   (b) 101.0110101 as binary number

   (c) 3.043 as a number in base 6

   (d) 25.6 as a number in base 9

3. Discuss a procedure for finding each and every decimal figures of a fracionary number below 1 given in base 10, e.g., 0.3141516

4. (a) Complete the table by converting the values to the different base systems.

Binary	*Hex*	*Dec*
1 1011 1110 1110 1101		
	$FEAD$	
		65537
		25/8
		71/3

   (b) Can the above fractional values be expressed exactly in those base systems? If not, find the smallest two bases where that's possible.