Convert the following numbers:
i) $(F\ 329)_{10}$ in to Binary
ii) $(1526.32)_{10}$ in to hexadecimal
iii) $(736.4)_{8}$ in to Decimal

i) Convert $(F\ 329)_{10}$ in to Binary

To convert a decimal number to binary, you can repeatedly divide the decimal number by 2 and note the remainders. Reading the remainders from bottom to top gives the binary representation.

Division	Quotient	Remainder
329 ÷ 2	164	1
164 ÷ 2	82	0
82 ÷ 2	41	0
41 ÷ 2	20	1
20 ÷ 2	10	0
10 ÷ 2	5	0
5 ÷ 2	2	1
2 ÷ 2	1	0
1 ÷ 2	0	1

Reading the remainders from bottom to top, the binary representation of 329 is 101001001.

Therefore, $(F329)_{10}$ in binary is 101001001.

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ii) Convert $(1526.32)_{10}$ in to hexadecimal

For the integer part, convert 1526 to hexadecimal:

Division	Quotient	Remainder (Hexadecimal)
1526 ÷ 16	95	6
95 ÷ 16	5	F
5 ÷ 16	0	5

Reading from bottom to top, the hexadecimal representation of the integer part is 5*F*6.

For the fractional part, convert 0.32 to hexadecimal:

Multiplication	Result	Result (Hexadecimal)
0.32 × 16	5.12	5
0.12 × 16	1.92	1
0.92 × 16	14.72	E

Combining the results, $(1526.32)_{10}$ in hexadecimal is 5*F*6.*E*.

iii) Convert $(736.4)_8$ in to Decimal

To convert an octal number to decimal, you can use the positional value of each digit.

$(736.4)_8 = 7\times8^2+3\times8^1+6\times8^0+4\times8^{-1}$

$=448+24+6+0.5$

$=478.5$

Therefore, $(736.4)_8$ in decimal is 478.5.

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