

Conversion from Decimal to Hexadecimal

a) Convert with remainders

Algorithm:

- 1) Take decimal number as dividend
- 2) Divide this number by 16 (16 is base for hexadecimal division)
- 3) Store Remainder in an Array (0 to 15, with 10 to 15 being replaced by "A" to "F" respectively)
- 4) Repeat the above two steps (2 & 3) until the number is greater than 0.
- 5) Print the array in REVERSE ORDER
(Will be equivalent hexadecimal number of given decimal number)

Example. Convert decimal number 540 into hexadecimal.

Division		Remainder
1)	$540/16 = 33$	$12 = C$
2)	$33/16 = 2$	1
3)	$2/16 = 0$	2
4)	$0/16 = 0$	0

Hexadecimal: 021C 'or' 21C

Cont

Example Convert 1092 to Hexadecimal

Output	Remainder
$1092/16 = 68$	4
$68/16 = 4$	4
$4/16 = 0$	4
$0/16 = 0$	0

Hexadecimal : 0444 or 444

B) Converting Decimal Fractional Number (0.xxx) to Hexadecimal

Algorithm:

- 1) Take decimal number and multiply by 16 (16 is base of hexadecimal)
- 2) Store the value of the integer part (whole number or "y" for "y.xxx") in an array
- 3) Repeat the above steps (1+2) until the Fractional Number (0."xxx") becomes 0
- 4) Print the Array

Example: Convert 0.06640625 into Hexadecimal

Output	Integer
$0.06640625 \times 16 = 1.0625$	1
$0.0625 \times 16 = 1.0$	1
$0 \times 16 = 0.0$	0

Hexadecimal is 0.110

Example: Convert 0.08324 to Hexadecimal

Output	Integer
$0.08324 \times 16 = 1.33184$	1
$0.33184 \times 16 = 5.30944$	5
$0.30944 \times 16 = 4.95104$	4
$0.95104 \times 16 = 15.21664$	15 = F
$0.21664 \times 16 = 3.46624$	3
$0.46624 \times 16 = 7.45984$	7
$0.45984 \times 16 = 7.35744$	7
$0.35744 \times 16 = 5.71904$	5
$0.71904 \times 16 = 11.50464$	B
$0.50464 \times 16 = 8.07424$	8
$0.07424 \times 16 = 1.18784$	1
$0.18784 \times 16 = 3.00544$	3
$0.00544 \times 16 = 0.08704$	0
$0.08704 \times 16 = 1.39264$	1
$0.39264 \times 16 = 6.28224$	6
$0.28224 \times 16 = 4.5184$	4
$0.5184 \times 16 = 8.25344$	8
$0.25344 \times 16 = 4.05504$	4
$0.05504 \times 16 = 0.88064$	0
$0.88064 \times 16 = 14.09024$	E
$0.09024 \times 16 = 1.44384$	1
$0.44384 \times 16 = 7.10144$	7
$0.10144 \times 16 =$	

Hexadecimal Equivalent is

0.154F3775B8130164840E17

* If you get a mixed decimal number (2.058)

First get the value of the whole number to hexadecimal/

Then get the value of the fraction decimal to hexadecimal/

Lastly add _{combine} both hexadecimal numbers together to get

total hexadecimal value