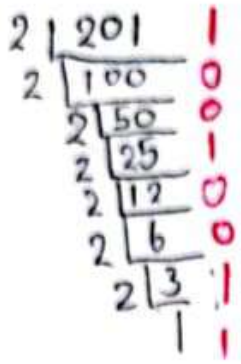
Pattarapon koomphon 64130500240

1) Convert 201 base10 to 8-bit binary

Answer:

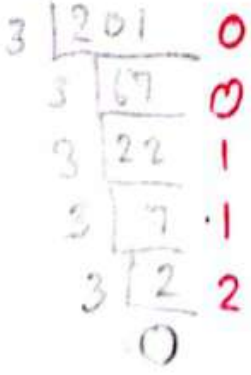
* use division method



* Answer : 11001001_2

2) Convert 201 base 10 to base 3 using the division method (5 digit answer ddddd)

Answer:



Answer: 21100_3

3) Convert 11 1110 0111 binary to hexadecimal

Answer:

$0111 = 0\times2^3 + 1\times2^2 + 1\times2^1 + 1\times2^0 = 0+4+2+1 = 7$

$16 \overline{)\,7}\ 7$

0

$\therefore$ 0111 is 7

$1110 = 1\times2^3 + 1\times2^2 + 1\times2^1 + 0\times2^0 = 8+4+2+0 = 14$

$\therefore$ 1110 is E + base 16

$0011 = 0\times2^3 + 0\times2^2 + 1\times2^1 + 1\times2^0 = 0+0+2+1 = 3$

$16 \overline{)\,3}\ 3$

0

$\therefore$ 0011 is 3

Answer: 11 1110 0111 = 3E7

(4) Convert COFE base 16 to binary (answer with space between 4 digits: dddd dddd dddd dddd)

Answer:

A = 10
B = 11
C = 12
D = 13
E = 14
F = 15

C : base 10
↳ 12

2 | 12 — 0
2 | 6 — 0
2 | 3 — 1
1

Answer: 1100

O is 0 in binary
↳ 0

F : base 10
↳ 15

2 | 15 — 1
2 | 7 — 1
2 | 3 — 1
1

Answer: 1111

E : base 10
↳ 14

2 | 14 — 1
2 | 7 — 1
2 | 3 — 1
1

COFE
is 1100 0000 1111 1110

⑤ Compute 1011 0101 + 0101 1011 in regular binary (not sign - magnitude). Write your answer in 8-bit binary

Answer:

```
 1011  0101  +
 0101  1011
 0001  0000 =
```

⑥ is there overflow in the previous question?

Answer: Yes.

⑦ Compute 0010 1100 - 0001 0111 (regular binary)
Write your answer in 8 bit binary

Answer:

```
 0010  1101
 0001  0111 -
 0001  0110 =
```

(8) Convert 105 base to 8 bit binary representation

2	105	1
2	52	0
2	26	0
2	13	1
2	6	0
2	3	1
	1	

8 bit

Answer: 01101001 //

(9) Convert -105 base 10 to 8bit signed megnitude representation

Answer:

2	105	1
2	52	0
2	26	0
2	13	1
2	6	0
2	3	1
	1	

8 bit

Answer: 11101001 //

(10) Convert -105 base 10 to 8 bit 2's complement representation

Answer:

2	105	1
2	52	0
2	26	0
2	13	1
2	6	0
2	3	1
	1	

∴ 105 in binary is 01101001

2's complement

01101001 is 10010110

+ 1

10010111 //

(11) Convert 105 base 10 to excess-M representation (use the lowest possible M)

Answer: excess-M for 8 bit

$2^{n-1} - 1$

$2^{8-1} - 1$

$2^{7} - 1$

$= 127$

$105 + M = 105 + 127 = 232$

232 → binary

2	232	0
2	116	0
2	58	0
2	29	1
2	14	0
2	7	1
2	3	1
	1	

Answer: 11101000_2 //

(12) What areas do you think you need more practice on?

Answer: excess-M representation