

2.2 $0x25B9D2$

0010 0101 1011 1001 1101 0010

$\overbrace{1010111001001001}^{1010111001001001}$
 $0x A E 4 9$

2.4 $n=2^3 \cdot 2^h = 2^{23}$
 $23 = 4 \cdot 5 + 3$

$i + 4j \quad 0 \leq j \leq 3$

j - zeros

i - power of first num

$0x 800000$

2.5 01001110

$64 + 8 + 4 + 2 = 76$

2.8

[01001110]

[11100001]

AND

01000001

bit-manipulations.c

0011 1100
 0000 1101

 0011 1100
 8421

$\rightarrow 8 + 4 = 12_{10}$

$$\sim 60 \rightarrow \sim 0011\ 1100 = 1100\ 0011$$

$$\overset{128\ 64}{(1100\ 0011)}_2 = 195 //$$

this is wrong!

$$\underbrace{0\dots\dots 0011\ 1100}_{24\ 0s}$$



$$\overset{31}{-2} \underbrace{1\dots\dots 1100\ 0011}_{24\ 1s} \rightarrow (-61)$$

shifting

1) left shift

$$\dots \cancel{0011\ 1100} \ll 2 \rightarrow \overset{128\ 64\ 32\ 16}{1111\ 0000}$$

$$128 + 64 + 32 + 16 = 240$$

2) Right Shift

$$0011 \quad 11 \rightarrow 2$$

$$0000 \quad \overset{8}{1} \overset{4}{1} \overset{2}{1} \overset{1}{1} \rightarrow 15$$

$$1+2+4+8=15$$

$$2, 12 \mid A) \quad X = 0x87654321$$

05

$$X \oplus 0xFF$$

$$0xFF \rightarrow \begin{array}{cccccc} 0 & 1 & 0 & 1 & \dots & 0 & 0 & 1 & 0 & 0 & 0 & 1 \\ 1 & 1 & 1 & 1 & \dots & 1 & 1 & 1 & 1 & 1 & 1 & 1 \end{array}$$

$$\begin{array}{cccccc} 0 & 0 & 0 & 0 & \dots & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 \\ 0 & & & & & 2 & & & & & & & \end{array}$$

$$b) \quad X = 0x87654321 \rightarrow 0x \dots 21$$

$$X \wedge \sim 0xFF$$

$$\begin{array}{cccccc} 1 & \dots & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \\ \dots & 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 \\ \hline 0 & 0 & 1 & 0 & 0 & 0 & 0 & 1 & = 21 \end{array}$$