

2 | 5421 | 1
 2 | 2710 | 0
 2 | 1355 | 1
 2 | 677 | 1
 2 | 338 | 0
 2 | 169 | 1
 2 | 84 | 0
 2 | 42 | 0
 2 | 21 | 1
 2 | 10 | 0
 2 | 5 | 1
 2 | 2 | 0
 2 | 1 | 1
 0

1010100101101

1. $FAC3 \rightarrow 1111101011000011$ binary
2. $FAC3 \rightarrow 15 \times 16^3 + 10 \times 16^2 + 12 \times 16^1 + 3 \times 16^0 = 64195$
3. $FAC3 \rightarrow -1 \times 16^3 + -6 \times 16^2 + -4 \times 16^1 + 3 \times 16^0 = -5693$
4. $0064 \rightarrow 0000000001160100$
5. $0064 \rightarrow 0 \times 16^3 + 0 \times 16^2 + 6 \times 16^1 + 4 \times 16^0 = 100$
6. $0064 \rightarrow 100$

7. $8000 \rightarrow 1000600000000000$
8. $8000 \rightarrow 8 \times 16^3 + 0 \times 16^2 + 0 \times 16^1 + 0 \times 16^0 = 32768$
9. $-8 \times 16^3 = -32768$
10. $16 | 8000 \rightarrow 500$
 $16 | 500 \rightarrow 31$
 $16 | 31 \rightarrow 1$
 $16 | 1 \rightarrow 0$

11. $8000 \rightarrow 0001111010000001F40$

12. $-11 \rightarrow 0000000000001011 \rightarrow 11111111110101 \rightarrow FFF5$

13. $-32717 \rightarrow 011111111001101 \rightarrow 100000000110011 \rightarrow 8033$

14. $1011101 \rightarrow BD$

15. $1011101000000001 \rightarrow 1 \times 2^{15} + 1 \times 2^{13} + 1 \times 2^{12} + 1 \times 2^{11} + 1 \times 2^{10} +$

$1 \times 2^8 + 1 \times 2^0 = 48385$

16. $1011101000000001 \rightarrow 01000101111111 \rightarrow 1 \times 2^{14} + 1 \times 2^9 + 1 \times 2^7 +$

$1 \times 2^6 + 1 \times 2^5 + 1 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0 = 168515$

18. $524,287 \rightarrow 15 \times 16^4 + 14 \times 16^3 + 15 \times 16^2 + 14 \times 16^1 + 7 \times 16^0 = 17151$

29. $9EEE$ Yes 30. Yes

+ ABOC

149FA

31. $B00F \rightarrow 1011000000001111$
 $4FF1 \rightarrow 010011111110001$

32. $2332 \rightarrow 0010001100110010$
 \downarrow
 $D C C E \rightarrow 1101110011001110$

33. $8000 \rightarrow 1000000000000000$

34. $111111111111001100101011010$
 $00000000000011001101011001000110$
 $000CD646$

44. 43700000

45. $COFF0000$

46. $CO59$

01000011011111
 s e f
 010001161111
 134

1100000011111111
 s e f
 11000001111111
 129

1100000010110010000
 s e f
 1100000010110010000
 3296

$-(1.111) \times 2^7$
 $(1.1110000)_2$
 240

1.1111111×2^2
 $(111.1111)_2$
 -7.96875

$-(1.001) \times 2^6$
 -100

39. $\begin{matrix} s & e & f \\ 11 & 215 & 01001 \end{matrix} = \text{EBA40000}$

$\underline{11101011} \underline{10100100} 0000$

40. 96.03125

$11000000.00001 \rightarrow 1.1000000001 \times 2^6$

$\begin{matrix} s & e & f \\ 1 & 133 & 01000000001 \end{matrix} = \text{C2C01000}$

$\underline{11000010} \underline{1000000001} 000$

41. $1 \times 2^{-128} \quad X-127 = -128$

$\begin{matrix} s & e & f \\ 0 & 127 & 111111111111 \end{matrix} \quad X = -1$

$\underline{01111111} \underline{0000} \quad 7F800000$

42. $1.5 \times 2^{-143} \quad F8280000$

$\begin{matrix} s & e & f \\ 1 & -14 & 0101 \end{matrix} \quad \underline{11110000} \underline{0101000} 0000$

$100010000 \rightarrow 11110000$

43. $-16777216 \times 2^0 \rightarrow \times 2^{24}$

$\begin{matrix} s & e \\ 1 & 100.000000000000000000000000.00 \end{matrix}$

$\begin{matrix} s & e & f \\ 1 & 151 & 00000000 \end{matrix}$

$\underline{11001011} \underline{000000} \quad \text{C8800000}$

35. $\begin{matrix} s & e & f \\ 0 & 254 & 11111 \dots \end{matrix}$

$\underline{01111101} \underline{110111} \underline{111111} \underline{111111} \underline{111111} \underline{111111} \underline{111111} \underline{111111} \quad 7F7FFFFF$

36. $\begin{matrix} s & e & f \\ 1 & 0 & 0000 \dots 1 \end{matrix}$

$\underline{100000000000} \underline{0000} \underline{0000} \underline{0000} \underline{0000} \underline{0001} \quad 80000001$

37. $\begin{matrix} s & e & f \\ 1 & 1 & 0000 \dots 1 \end{matrix}$

$\underline{100000001} \underline{000000000001} \quad 80800001$

38. $\begin{matrix} s & e & f \\ 0 & 0 & 00001111 \end{matrix} \quad 00000001$

$16 \overline{) 123456} \quad 0$

$16 \overline{) 7716} \quad 4$

$16 \overline{) 482} \quad 2 \quad \text{IE240}$

$16 \overline{) 30} \quad 14$

$16 \overline{) 1} \quad 1$

0

$\begin{matrix} 123 & f23 \\ + 456 & + B98 \end{matrix}$

$\begin{matrix} 579 & 1A BB \end{matrix}$

DEAD BEEF

$\underline{1101} \underline{1110} \underline{1010} \underline{1101} \underline{1011} \underline{1101} \underline{1101} \underline{1111}$