HW#4 Sarah Mentel

① Exercise 5.26:

a) $-30.5 \rightarrow 01\,1110\,1000\,00$

111110.100000

F A 0

$\rightarrow$ FA0

b) $16.25 \rightarrow 010000.010000$

4 1 0

$\rightarrow$ 410

c) $-8.078125 \rightarrow 001000.000101$

101000.000101

A 0 5

$\rightarrow$ A05

② Exercise 5.28

a.) $-30.5 \rightarrow 01\,1110\,1000\,00$

$10\,0001\,0111\,11$

$100001\,1000\,00$

8 6 0

860

b.) $16.25 \rightarrow 010000.010000$

$\rightarrow$ 410

c.) $-8.078125 \rightarrow 001000\,000101$

add1 110111111010

$110111111011 \rightarrow$ DFB

3. Exercise 5.30

a.) $-30.5 \rightarrow 11110.1 \rightarrow 1.11101 \times 2^5$

1 10000100 11101000000000000000

Sign bit | Biased exp | Fraction bits

$127+5=132$

In Hexa: 0XC27A0000

b.) $16.25 \rightarrow 10000.010000 \rightarrow 1.000001 \times 2^4$

0100 0001 1010 0000 1000 0000 0000 0000

Sign bit | Biased exp | Fraction bit

$127+4=131$

In Hexa: 0X81A08000

c.) $-8.078125 \rightarrow 1000.000101$

$\rightarrow 1.000\ 0001\ 01 \times 2^3$

$127+3=130$

1100 0001 0100 0000 1010 0000 0000 0000

Sign | Biasexp

0XC140A000

④ 5.32

a) 011101.10101 0.65625

16+8+4+1 2^{-1} 2^{-2} 2^{-3} 2^{-4} 2^{-5}

29 + 0.65625 → 29.65625

b.) 100110.11010

011001.00101

011001.06110

1+8+16 → 0.1875

−25.1875

c.) 101000.00100

010111.11011

010111.11100

1+2+4+16=23 → 0.875

−23.875