

HW3

1. Hex FAC3 in binary is:

$$\text{Hex FAC3} = 11111010110011 \text{ binary}$$

2. Hex FAC3 as an unsigned decimal is:

$$\text{Hex FAC3} = 15(16^3) + 10(16^2) + 12(16^1) + 3(16^0) = 64195 \text{ unsigned decimal}$$

3. Hex FAC3 as a signed decimal is:

$$\text{Hex FAC3} = -(0(16^3) + 5(16^2) + 3(16^1) + 13(16^0)) = -1341 \text{ signed decimal}$$

4. Hex 0064 in binary is:

$$\text{Hex 0064} = 00110100 \text{ binary}$$

5. Hex 0064 as an unsigned decimal is:

$$\text{Hex 0064} = 0(16^3) + 0(16^2) + 6(16^1) + 4(16^0) = 100 \text{ unsigned decimal}$$

6. Hex 0064 as a signed decimal is:

$$\text{Hex 0064} = 0(16^3) + 0(16^2) + 6(16^1) + 4(16^0) = 100 \text{ signed decimal}$$

7. Hex 8000 in binary is:

$$\text{Hex 8000} = 1000000000000000 \text{ binary}$$

8. Hex 8000 as an unsigned decimal is:

$$\text{Hex 8000} = 8(16^3) = 32768 \text{ unsigned decimal}$$

9. Hex 8000 as a signed decimal is:

$$\text{Hex 8000} = -8(16^3) = -32768 \text{ signed decimal}$$

10. Decimal 8000 encoded in 16-bits (unsigned) is in hex:

1F40 Hex

11. Decimal 8000 encoded in 16-bits (signed) is in hex:

1F40 Hex

12. Decimal -11 encoded in 16-bits (signed) is in hex: 5

13. Decimal -32717 encoded in 16-bits (signed) is in hex: 0033

14. Binary 10111101 in hex is: BD

15. Binary 1011110100000001 as an unsigned decimal is:

48385 unsigned decimal

16. Binary 1011110100000001 as a signed decimal is:

-5301 signed decimal

17. If we had 20-bit registers, the smallest signed decimal value would be: -1048576

18. If we had 20-bit registers, the largest signed decimal value would be: 1048575

19. The modular sum of 16-bit hex values 3511 + 4FFC is: 850D

20. The saturated sum of 16-bit hex values 3511 + 4FFC is: 850D

21. The 16-bit operation 3511 + 4FFC has a carry (Y or N): N

22. The 16-bit operation 3511 + 4FFC has a overflows (Y or N): N

23. The modular sum of 16-bit hex values 6159 + F702 is: 585B

24. The saturated sum of 16-bit hex values 6159 + F702 is: FFFF

25. The 16-bit operation 6159 + F702 has a carry (Y or N): Y

26. The 16-bit operation $6159 + F702$ has a overflows (Y or N): Y
27. The modular sum of 16-bit hex values $EEEE + C00C$ is: AEFA
28. The saturated sum of 16-bit hex values $EEEE + C00C$ is: FFFF
29. The 16-bit operation $9EEE + AB0C$ has a carry (Y or N): Y
30. The 16-bit operation $9EEE + AB0C$ has a overflows (Y or N): Y
31. The negation of 16-bit word B00F is: 4FF1
32. The negation of 16-bit word 2232 is:
- a. If 2232 is a decimal negation is -2232
 - b. If 2232 is a hex negation is DD CD
33. The negation of 16-bit word 8000 is:
- a. If 8000 is a decimal, negation is -8000
 - b. If 8000 is a hex, negation is 7FFE
34. The negation of 32-bit word FFF329BA is: FFF329BB
35. 96.03125 as a 32-bit float, in hex is: 000CD646
36. -16777216 as a 32-bit float, in hex is: CC000000
37. Hex 43700000, when iterpreted as an IEEE-754 pattern, is in decimal: 240
38. (OPTIONAL) Hex C0FF0000, when iterpreted as an IEEE-754 pattern, is in decimal:
-7.96875