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1. **Hex FAC3 in binary is:**
    a. 1111 1010 1100 0011
2. **Hex FAC3 as an unsigned decimal is:**
    a. 64206
3. **Hex FAC3 as a signed decimal is:**
    a. -1341
4. **Hex 0064 in binary is:**
    a. 0000 0000 0110 0100
5. **Hex 0064 as an unsigned decimal is:**
    a. 100
6. **Hex 0064 as a signed decimal is:**
    a. 100
7. **Hex 8000 in binary is:**
    a. 1000 0000 0000 0000
8. **Hex 8000 as an unsigned decimal is:**
    a. 32768
9. **Hex 8000 as a signed decimal is:**
    a. -32768
10. **Decimal 8000 encoded in 16-bits (unsigned) is in hex:**
    a. FA00
11. **Decimal 8000 encoded in 16-bits (signed) is in hex:**
    a. 1F40
12. **Decimal -11 encoded in 16-bits (signed) is in hex:**
    a. FFF5
13. **Decimal -32717 encoded in 16-bits (signed) is in hex:**
    a. 8033
14. **Binary 10111101 in hex is:**
    a. BD
15. **Binary 1011110100000001 as an unsigned decimal is:**
    a. 48769
16. **Binary 1011110100000001 as a signed decimal is:**
    a. -15617
17. **If we had 20-bit registers, the smallest signed decimal integer value would be:**
    a. -2^19: -524288

18. **If we had 20-bit registers, the largest signed decimal integer value would be:**
    a. 2^(n-1)-1: 524287
19. **The modular sum of 16-bit hex values 3511 + 4FFC is:**
    a. 850D
20. **The saturated sum of 16-bit hex values 3511 + 4FFC is:**
    a. 850D
21. **The 16-bit operation 0x3511 + 0x4FFC has a carry (Y or N):**
    a. N
22. **The 16-bit operation 0x3511 + 0x4FFC has a overflows (Y or N):**
    a. Y

These problems give you more to think about with the concepts of number conversion and arithmetic.

23. The modular sum of 16-bit hex values 6159 + F702 is:
a. 585B
24. The saturated sum of 16-bit hex values 6159 + F702 is:
a. FFFF
25. The 16-bit operation 0x6159 + 0xF702 has a carry (Y or N):
a. Y
26. The 16-bit operation 0x6159 + 0xF702 has a overflows (Y or N):
a. N
27. The modular sum of 16-bit hex values EEEE + C00C is:
a. AEFA
28. The saturated sum of 16-bit hex values EEEE + C00C is:
a. FFFF
29. The 16-bit operation 9EEE + AB0C has a carry (Y or N):
a. Y
30. The 16-bit operation 9EEE + AB0C has a overflows (Y or N):
a. N
31. The negation of 16-bit word 0xB00F is:
a. 4FF1
32. The negation of 16-bit word 0x2232 is:
a. DDCE
33. The negation of 16-bit word 0x8000 is:
a. 8000

34. **The negation of 32-bit word 0xFFF329BA is:**
    a. 000CD646
35. **96.03125 as a 32-bit float, in hex is:**
    a. 42C01000
36. **-16777216 as a 32-bit float, in hex is:**
    a. CB800000
37. **Hex 43700000, when interpreted as an IEEE-754 pattern, is in decimal:**
    a. 240
38. **Hex C0FF0000, when interpreted as an IEEE-754 pattern, is in decimal:**
    a. -7.96875

These problems are difficult and will require you to do some research to get the answers. They are considered optional and you will get extra credit for getting them correct, one point per problem. For any you attempt for which your answer is *incorrect*, you will NOT be penalized, you just won't get any credit for that one.

39. **The largest finite IEEE-754 single precision float, in hex is:**
    a. 7F7FFFFF
40. **The smallest finite IEEE-754 single precision float, in hex is:**
    a. 0xFF7FFFFF
41. **The largest nonzero negative IEEE-754 single precision float, in hex is:**
    a. 80000001
42. **The smallest nonezero positive IEEE-754 single precision float, in hex is:**
    a. 00000001
43. **-5.125×2^{90} as a 32-bit float, in hex is:**
44.
45. **2^{-138} as a 32-bit float, in hex is:**
46. **1.5×2^{-143} as a 32-bit float, in hex is:**
47. **Try this for a challenge, a puzzle, or the experience: Hex C059000000000000, when iterpreted as a 64-bit IEEE-754 pattern, is in decimal:**