

University of Massachusetts
Department of Electrical and Computer Engineering

ECE 160
Lab #1/Prj #1 SOLUTION

Name: numbase.txt
due: see <http://www.ece160.org>

NOTE: if a problem cannot be solved indicate why in your answer. Also all numbers in 14-25 are in base 16 (& = bitwise AND, | = bitwise OR, ~ = bitwise compliment, ^ = bitwise XOR). Be sure to give your answer in the proper base. It is up to you whether you wish to use a calculator to do this sheet...keep in mind that calculator use is NOT allowed on any exams.

1. $110011101|_2 = ? |_{10}$ 413
2. $70|_8 = ? |_{10}$ 56
3. $34|_8 = ? |_{16}$ 1C
4. $47|_{10} = ? |_2$ 10111
5. $511|_{10} = ? |_{16}$ 1FF
6. $265|_{10} = ? |_2$ 109
7. $41E|_{16} = ? |_{10}$ 1054
8. $FECDBA |_{16} = ? |_8$ 77546672
9. $10110110|_2 = ? |_{16}$ B6
10. $100010011|_2 = ? |_8$ 423
11. $363|_8 = ? |_2$ 1111011
12. $1BA|_{16} = ? |_8$ 672
13. $54|_{16} = ? |_2$ 1010100

All remaining values are in base 16; all answers must be in base 16

[Note Problems 15 & 18 were messed up on original – no points deducted]

14. $2053 \& F0F0 = ? |_{16}$ 2050
15. $14F7B3 \& E780 = ? |_{16}$ E780
16. $FF00 \wedge 7FFF = ? |_{16}$ 80FF
17. $FACE | \sim DEED = ? |_{16}$ FBDE
18. $ACDC | EA7 = ? |_{16}$ AEFF
19. $\sim FF = ? |_{16}$ (express in 8 bits) 00
20. $\sim 10 = ? |_{16}$ (express in 8 bits) EF
21. $(63) \wedge (63) = ? |_{16}$ 00
22. $A \wedge 5 = ? |_{16}$ F
23. $(\sim(FF)) \wedge (A0) = ? |_{16}$ A0 (or FFA0)
24. $(FADE|7777) \wedge (9999) = ? |_{16}$ 6666
25. $123 | 66AA \& 6655 = ? |_{16}$ 6723
26. $C \ll 3 =$ 60
27. $55 \ll 1 =$ AA
28. $1 \ll 5 =$ 10
29. $80 \gg 4 =$ 8
30. $44 \gg 2 =$ 9