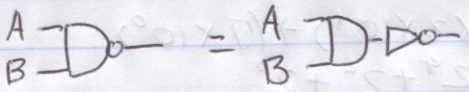
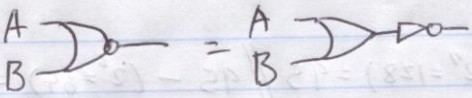
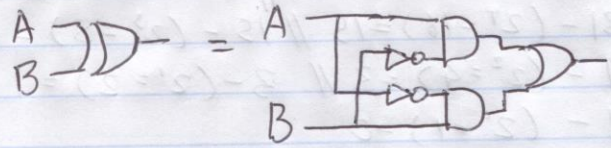
# Digital logic HW

1. $(8\times10^2)+(2\times10^1)+(7\times10^0)$
2. $2^7+2^6+2^4+2^2+2^0$
3. 8bits
4. $233-(2^7=128)=95 \,//\, 95-(2^6=64)=31 \,//$
   $31-(2^4=16)=15 \,//\, 15-(2^3=8)=7 \,//$
   $7-(2^2=4)=3 \,//\, 3-(2^1=2)=1 \,//$
   $1-(2^0=1)=0$
   $= 2^7+2^6+2^4+2^3+2^2+2^1+2^0$
   $= 11011111_2$
5. $(1\times10^3)+(2\times10^1)+(2\times10^0)$
6. 2|1022 → 2|511 = 0 → 2|255 = 1 → 2|127 = 1 → 63 = 1
   2|63 → 2|31 = 1 → 2|15 = 1 → 2|7 = 1 → 2|3 = 1 → 2|1 = 1 → 0 = 1
   $= 1111111110_2$
7. 3FE ← 11 1111 1100
8. 355
10. 3FB
13. 1111 1010 1011 = 4011
15. 1100 1010 1111 1110
18. 0 ~ 4095

23. 


24. 


25. 


26.

| A | B | C | output |
|---|---|---|---|
| 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 |
| 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 |
| 1 | 0 | 0 | 1 |
| 1 | 0 | 1 | 1 |
| 1 | 1 | 0 | 1 |
| 1 | 1 | 1 | 1 |

27. $(A \vee \neg B) \wedge \neg(B \vee C)$