

Physics 262

Homework #7

Show your work.

For design problems, work to within 5% of specifications.

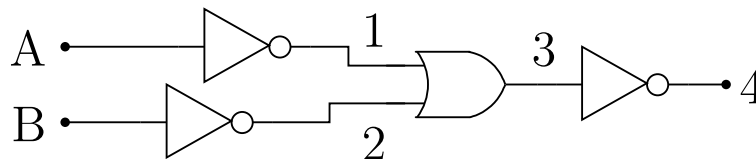
1. Complete the table by performing the appropriate conversions.

Binary	Hex	Decimal
11100	1C	28
10101	AC	19
		169

2. Which of the following is true about the standard input & output voltage specifications for TTL and CMOS logic:
 - (a) They are always satisfied if a TTL output drives a CMOS input.
 - (b) They are always satisfied if a CMOS output drives a TTL input.
 - (c) They are always satisfied when TTL and CMOS chips are connected, regardless of the order.
 - (d) They are never satisfied when TTL and CMOS are connected.

Explain your answer.

3. Write the truth table for the following circuit. Include all labeled pins in your truth table. What single logic gate is equivalent to this circuit?



4. Extra credit challenge: You are given an infinite supply of AND and OR gates, plus two INVERTERS (NOTs). Draw a circuit that takes three inputs A, B, C and provides three outputs $\bar{A}, \bar{B}, \bar{C}$. *If you succeed, your score on this assignment will be converted to base 9, and we will record the resulting digits in the grade book as if they were decimal.*