ACSL

2006 - 2007 **American Computer Science League** **Contest #2**

Intermediate Division

1. Boolean Algebra

Simplify completely:

$$\overline{A}(B+\overline{A})+\overline{A}(\overline{B}+A)$$

2. Boolean Algebra

List all the ordered triples that make the following expression TRUE:

$$A(\overline{B}+C)+\overline{A}\,\overline{B}(A+\overline{B})C$$

3. Computer Number Systems

What is the positive difference between the number of 1's in the binary representation of the following two values:

$A37E_{16}$ and 67541_8

4. Bit-String Flicking

Evaluate:

((RSHIFT-2 (10110 AND 10010)) OR (LCIRC-3 (01101 OR 10001)))

5. Bit-String Flicking

List all the values of X (a 5-bit string) that make the following expression TRUE:

(LSHIFT-2 (RCIRC-1 (NOT X))) = 10000