



American Computer Science League

2019-2020

Contest #2

INTERMEDIATE DIVISION

考号/Exam Code : _____

姓名/Name : _____

学校/School : _____

1. Prefix/Infix/Postfix Notation

Convert the following infix expression to a postfix expression:

$$\frac{A + B^2}{A^2} - \frac{AC}{B} + ABC$$

1.

2. Prefix/Infix/Postfix Notation

Evaluate this prefix expression: (Note: all numbers are single digits)

+ - * 4 - 8 / 6 3 / + ↑ 3 2 ↑ 4 2 5 // ↑ 6 3 * 4 3 2

2.

3. Bit-String Flicking

Evaluate the following 6-bit expression:

(LSHIFT-1 (LCIRC-2 (RSHIFT-1 (NOT 100001))))

3.

4. Bit-String Flicking

Solve for X (5 - bit string):

(LCIRC-2 (RCIRC-4 X OR LSHIFT-1 01001 AND NOT 01010)) = 10011

4.

5. LISP

Evaluate the following LISP expression:

(CAR (CDR (CAR (CDR '(1 (2 (3 4)(5 6) 7) 8)))))

5.



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1. Prefix/Infix/Postfix Notation

将下列中缀表达式转换为后缀表达式:

$$\frac{A + B^2}{A^2} - \frac{AC}{B} + ABC$$

1.

2. Prefix/Infix/Postfix Notation

计算下述前缀表达式的值：(注意：每个数字都是单个数字)

$$+ \ - \ * \ 4 \ - \ 8 \ / \ 6 \ 3 \ / \ + \ \uparrow \ 3 \ 2 \ \uparrow \ 4 \ 2 \ 5 \ // \ \uparrow \ 6 \ 3 \ * \ 4 \ 3 \ 2$$

2.

3. Bit-String Flicking

计算下述6位表达式的值：

$$(\text{LSHIFT-1}(\text{LCIRC-2}(\text{RSHIFT-1}(\text{NOT } 100001))))$$

3.

4. Bit-String Flicking

求解X (X的字符串长度为5):

$$(\text{LCIRC-2}(\text{RCIRC-4 } X \text{ OR } \text{LSHIFT-1 } 01001 \text{ AND } \text{NOT } 01010)) = 10011$$

4.

5. LISP

计算下列LISP表达式的值:

$$(\text{CAR}(\text{CDR}(\text{CAR}(\text{CDR}(' (1 (2 (3 4)(5 6) 7) 8))))))$$

5.