**ACSL**

**American Computer Science League**

#### Contest #2

**2015 - 2016**

### Intermediate Division Solutions

# Prefix/Infix/Postfix

(s \* (s – a) \* (s – b) \* (s – c))1/2 = ((s \* ( – s a)) \* ( – s b) \* ( – s c)) ↑ ( / 1 2)

= (((\* s – s a) \* (− s b)) \* (− s c)) ↑ (/ 1 2) = ((\* \* s – s a – s b) \* (− s c)) ↑ (/ 1 2)

= (\* \* \* s – s a – s b – s c) ↑ (/ 1 2)

= ↑ \* \* \* s – s a – s b – s c / 1 2

1. As shown

AS SHOWN

2)

1. **Bit-String Flicking**

(LSHIFT-1 (RCIRC-2 (RSHIFT-1 (LCIRC-3 01101))))

= (LSHIFT-1 (RCIRC-2 (RSHIFT-1 01011)))

= (LSHIFT-1 (RCIRC-2 00101))

= (LSHIFT-1 01001)

= 10010

# 2. Prefix/Infix/Postfix

# 2 3 2 ↑ − 4 8 2 / 1 + \* 2 / + 2 3 \* 6 / +

# = 2 (3 2 ↑) – 4 (8 2 /) 1 + \* 2 / + (2 3 \*) 6 / +

# = (2 9 –) 4 (4 1 +) \* 2 / + (6 6 /) +

= -7 (4 5 \*) 2 / + 1 +

= -7 (20 2 /) + 1 +

= (-7 10 +) 1 +

= 3 1 + = 4

**4. Bit-String Flicking**

(LCIRC-2(RSHIFT-1 01101)) AND ((RCIRC-1 01100) OR (NOT 01101))

= (LCIRC-2 00110) AND (00110 OR 10010)

= 11000 AND 10110

= 10000

4. 10000

3. 10010

1. **LISP**

(MULT (ADD 2 3 1 (EXP 3 2)) (SUB (MULT 4 2) (DIV 10 2)))

= (MULT (ADD 2 3 1 9) (SUB 8 5))

= (MULT 15 3)

= 45

5. 45

2. 4