**ACSL**

**American Computer Science League**

#### Contest #2

**2015 - 2016**

### Junior Division Solutions

# 1. Prefix/Infix/Postfix

a b / a b c ↑ \* + a b c \* a − \* a / − = (a b /) a (b c ↑) \* + a (b c \*) a − \* a / −

= (a/b) a (b↑c) \* + a (b\*c) a − \* a / − = 6 (a 8 \*) + a (6 a −) \* a / −

= 6 (a\*8) + a (6 – a) \* a / − = (6 96 +) (a -6 \*) a / − = (6 + 96) (a \* -6) a / −

= 102 (-72 a /) − = 102 (-72/a) − = 102 -6 − = 108



1. 108

= 6 96

1. **Prefix/Infix/Postfix**

Inserting symbols and parentheses, the expression becomes:

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

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

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

= − / \* a ↑ − b c 2 b / c ↑ a 2

3. 01101

4. 11001

**3. Bit-String Flicking**

01101 OR (NOT 10111) AND 10010

= 01101 OR (01000 AND 10010)

= 01101 OR 00000

= 01101

**4. Bit-String Flicking**

(LCIRC-2 01110) OR ((NOT 10110) AND (RSHIFT-1 01110))

= 11001 OR (01001 AND 00111)

= 11001 OR 00001 = 11001

2. As shown

1. **What Does This Program Do?**

This program counts the integers from 1 to 50 inclusive that are

divisible by 2, 3 or 5. There are 36 such integers. S counts the ones that are not, which is 89 since 125 integers were checked in the three loops.

5. 36, 89