# ACSL

**2013 - 2014** **American Computer Science League** **Contest #2**

**Intermediate Division Solutions**

**1. Prefix/Infix/Postfix**

$\frac{A^2\ (B+C)}{A-C} + \frac{A+B}{C^2}$ = (((A²)*(B+C))/(A – C ))+((A+B)/C²)
= (((A2↑)*(BC+))/(AC-))+((AB+)/(C2↑))
= ((A2↑BC+*)/(AC-))+(AB+C2↑/)
= (A2↑BC+*AC-+)+(AB+C2↑)
= A 2 ↑ B C + * A C - / A B + C 2 ↑ /+

1. As shown

**2. Prefix/Infix/Postfix**

+ + / * 3 ↑ + 2 8 2 ↑ 5 2 4 / * 6 8 * 4 3
= + + / * 3 ↑( + 2 8 ) 2 (↑ 5 2 )4 / ( * 6 8 ) ( * 4 3 )
= + + / * 3 ( ↑ 10 2 ) 25 4 ( / 48 12 )
= + + / ( * 3 100 ) 25 4 4
= + + ( / 300 25 ) 4 4
= + ( + 12 4 ) 4 = + 16 4 = 20

2. 20

**3. Bit-String Flicking**

(NOT ( 10010 OR NOT 10011 AND 11011 ) )
= (NOT ( 10010 OR 01100 AND 11011 ) )
= (NOT ( 10010 OR 01000 )
= (NOT 11010) = 00101

3. 00101

**4. Bit-String Flicking**

( (LSHIFT – 2 01101) OR 01011 AND (RCIRC – 3 11011) )
= 10100 OR 01011 AND 01111
= 10100 OR 01011
= 11111

4. 11111

**5. LISP**

( ADD ( MULT 2 5 ) ( EXP 3 2 ) ( SUB 4 ( DIV 6 2) ) )
= ( ADD ( MULT 2 5 ) ( EXP 3 2 ) ( SUB 4 ( DIV 6 2) ) ) )
= ( ADD 2 * 5 $3^2$ 4 - (6/2) )
= 10 + 9 + 1 = 20

5. 20