**ACSL**

**American Computer Science League**

#### Contest #1

**2015 - 2016**

### Junior Division

# 1. Recursive Functions

Find (0) given:

 



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

What is printed when this program is run?

a = 4: b = 10: c = 1: d = 2

if a <= b then a = a + b

if c \* d >= a then b = b + c else c = c - d

if a / b <= 1 then a = c + a else b = d + b

if d ^ c < c ^ d then c = d else d = c

if ((a > b) or (c < d)) then b = a - b else c = d + c

print a / b + c \* (a \* b – c / d) / b

end

1. **Recursive Functions**

Find (5) given:



**4. Computer Number Systems**

Determine the number of 1’s in the binary representation of the

solution of the following expression:

(7438 – AF16 + 1101001010002) \* 25610

**3. Computer Number Systems**

Which has the most 1’s in its binary representation?

4148 1B516 17810 20016 6008