

## 3) (5 pts) ALG (Bitwise Operators)

What is the output of the following C program?

```
#include <stdio.h>

int main() {

    int x = 13, y = 27, z = 74;
    printf("x^y = %d\n", x^y);
    printf("x&z = %d\n", x&z);
    printf("x&(y|z) = %d\n", x&(y|z));
    printf("x|y|z = %d\n", x|y|z);

    int i, sum = 0;
    for (i=0; i<10; i++) {
        if ((x & (1<<i)) != 0) sum++;
        if ((y & (1<<i)) != 0) sum++;
        if ((z & (1<<i)) != 0) sum++;
    }
    printf("sum = %d\n", sum);
    return 0;
}
```

$x^y =$  22

$x \& z =$  8

$x \& (y|z) =$  9

$x|y|z =$  95

$\text{sum} =$  10

(Grading: 1 pt each, all or nothing)