

HW3

1.

```
#include int main()
{
    long i = 1;
    Char * blah = &i;
    if (blah[0])
    {
        printf("%d\n",1);
    }
    Else { printf("%d\n",0); }

    Return 1;
}
```

2.

```
#include <stdio.h>
Int main(void)
{
    int x = x=0x89ABCDEF;
    int y=0x76543210;
    printf("0x%x\n",(x & 0x000000FF) | (y & 0xFFFFF00));
    return 0;
}
```

3.

```
#include <limits.h>

Int tsub_ok(int x, int y)
{
    int sub = x - y;
    Int post_flag = x >= 0 && y < 0 && sub < 0;
    Int neg_flag = x < 0 && y >= 0 && sub >= 0;
    Return !pos_flag && !neg_flag;
}
```

4.

A) $(x < y) == (-x > -y)$: the answer is FALSE
 $1 > \text{INT_MIN} != -1 < -\text{INT_MIN}$

B) $((x + y) << 4) + y - x == 17*y + 15*x$: the answer is TRUE

$$((x+y) << 4) + y - x == ((x+y) * (0x1000) + y - x)$$

$$((x+y) << 4) + y - x == ((x + y) * 16) + y - x$$

$$((x+y) << 4) + y - x == 17 * x + 15 * x$$

C) $\sim x + \sim y + 1 == \sim(x+y)$: The answer is FALSE

$$X + \sim x + 1 == 0$$

$$\sim x + 1 == -x$$

$$\sim(x+y) + 1 == -(x+y)$$

$$\sim(x+y) + 1 == (-x) + (-y)$$

$$\sim(x+y) + 1 == -x - y$$

$$\sim(x+y) + 1 == \sim x + 1 + \sim y + 1$$

$$\sim(x+y) + 1 != \sim x + \sim y + 1$$

D) $((\text{unsigned}) x - (\text{unsigned}) y) == -(\text{unsigned})(y-x)$: The answer is TRUE

$$X - y == -(x-y)$$

E) $((x >> 2) << 2) <= x$: The answer is TRUE

$$X == (x >> 2) << 2 + \text{positive}$$

$$X >= (x >> 2) << 2$$

2.

| (x1,x0) | 00 | 01 | 11 | 10 |
|---------|----|----|----|----|
| (x3,x2) | 00 | 1 | 1 | 0 |
| 01 | 1 | 0 | 0 | 1 |
| 11 | 1 | 0 | 1 | 1 |
| 10 | 1 | 1 | 0 | 1 |

$$I = x1'x0'$$

$$II = x3'x2'x1'$$

$$III = x3x2'x1'$$

$$IV = x3x0'$$

$$V = x3'x2x0'$$

$$VI = x3x2x1$$

$$F(x3,x2,x1,x0) = x1'x0' + x3'x2'x1' + x3x2'x1' + x3x0' + x3'x2x0' + x3x2x1$$