Sheet 3

Warmup

a) register can only be applied on local variables so it must be in func()

b) extern is only global scope and register only local scope

c)static in the parameter list is not allowed

d)mixing static and register isnt allowed

e)should work

Exercise 3.1

a) First we set k=n initially then it runs through the loop and add 1 if the least significan bit is 1

Then we make a right shit on k which removes the least significant bit and then the loop repeats until no more bits are left (ergo k=0)

b) log2(n)+1 becaue its halfed each iterration

c) signed int would allow on right shift for negative numbers to break the count and introduce more bits therefore it wont work

d)

```c
#include <stdio.h>

float negate(float s);

int main() {
    float a = 1.0f;
    printf("%.2f", negate(a));
}

float negate(float s) {
    unsigned int *ps = (unsigned int *) &s; //so i can use bit operations
    *ps ^= 1 << 31; //XOR the 31 bit with 1
    return s;
}
```

Exercise 3.2

a)

char c =’B’; // No convsrion

short s = −1; //conversion to short

unsigned int ui = 10; //conversion to unsigned int

c !=’X’; //No conversion

c + s // both get converted into an signed integer to add them together

ui > s //cast to signed int

ui ∗= 2.0; // implicit cast from double to signed int