Sheet 3

Warmup

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

b) should work

c)static in the parameter list is not allowed

d)mixing stati and register is not optimal

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)

```
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’; //conversion to char

short s = −1; //conversion to short

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

c !=’X’; //its an check if the integer value of those two chars isnt ident which is true

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

ui > s //s gets converted to an unsinged int

ui ∗= 2.0; // ui get converted to a double

b)

Acall of time(NULL) will give the current time as the number of seconds since Jan 1, 1970, returning a value of type time t, which is a synonym for long. What does the call to srand() do on a 16-bit system?To answer this, consider the effect of the typecast more closely: what is the length of unsigned int, compared to the length of long?What change of value would happen upon the typecast from long to unsigned int?

Due to the fact that long is 32bit long and we have a conversion to unsigned int 16 bit so we truncate bits and this leads to a less random randomgenerator S