**z5173405 JIE MEI**

**Question 1**

**Firstly, we need to convert n to binary code. where then we will get that involves at most multiplications. when we want to calculate ,we can first calculate . According to the result of recursive calculation, if n is even,. If n is odd, . Since each recursion will halve the exponent, so at most multiplications.**

**Sample code(Java)**

class Solution {

    public static int myPow(int m, int n) {

        long b = n;

        int res = 1;

        if(b < 0) {

            m = 1 / m;

            b = -b;

        }

        while(b > 0) {

            if((b & 1) == 1) res \*= m;

            else {

                m \*= m;

                b >>= 1;

            }

        }

        return res;

    }

    public static void main(String[] args) {

        int res = myPow(2,16);

        System.out.println(res);

    }

}