面试题 16：数值的整数次方

题目：实现函数 double Power(double base, int exponent)，求 base 的 exponent 次方。不得使用库函数，同时不需要考虑大数问题。

解答

1. 如果exponent是负数，可以先用绝对值，最后结果返回倒数

2. 如果base是0.0，返回0.0

3. 如果exponent是0，返回1

4. 如果exponent是1，返回base

5. double中判断一个数是不是0，不能用"=="

6. 一般情况怎么求：快速幂

```
double Power(double base,int exponent)
{
   if(equal(base,0.0))
      return 0.0;
   unsigned int abs=(exponent>0) ? (unsigned int)exponent:(unsigned int)(-exponent);
   double result=unsignedPower(base,abs);
   if(exponent<0)
      return 1.0/result;
   else
      return result;
}
bool equal(double num1,double num2)
{
   if((num1-num2)>-0.00001 && (num1-num2)<0.00001)   //这两个都是num1-num2
      return true;
   else
      return false;
}
double unsignedPower(double base,unsigned int exponent)
{
   if(exponent==0)
      return 1.0;
   if(exponent==1)
      return base;
   double result=unsignedPower(base,exponent>>1);
   if(exponent & 0x1==1)//奇数
      return result*result*base;
```

```
    else
        return result*result;
}

double Power(double base, int exponent) {
    if(equal(base,0.0))
        return 0.0;
    unsigned int abs=0;
    if(exponent>0)
        abs=(unsigned int)(exponent);
    else
        abs=(unsigned int)(-exponent);
    double result=PowerunsignedExponent(base,abs);
    if(exponent<0)
        result=1.0/result;
    return result;
}
bool equal(double num1,double num2)
{
    if(num1-num2>-0.0000001 && (num1-num2)<0.0000001)
        return true;
    else
        return false;
}
double PowerunsignedExponent(double base,unsigned int exponent)
{
    if(exponent==0)
        return 1;
    if(exponent==1)
        return base;
    double result=PowerunsignedExponent(base,exponent>>1);
    result*=result;
    if(exponent & 0x1 == 1)
        result*=base;
    return result;
```