6.00 Introduction to Computer Science and Programming
Fall 2008

Item	Size	Value	Number Available
watch (w)	1	15	2
vase (v)	5	10	2
radio (r)	3	9	2
picture (p)	4	5	2

```
a b c d e f g h
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0 0 0 0 0 0 0 1
0 0 0 0 0 0 1 0
0 0 0 0 0 0 1 1
...
1 1 1 1 1 1 1 1
```
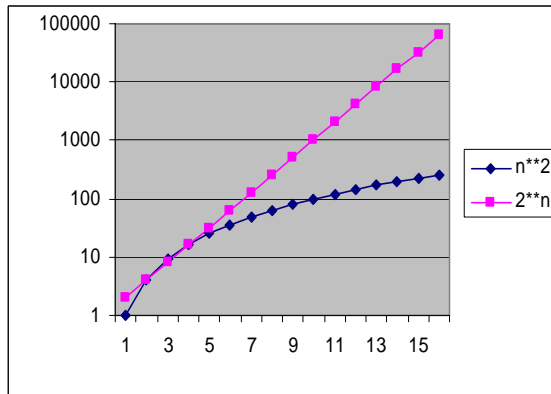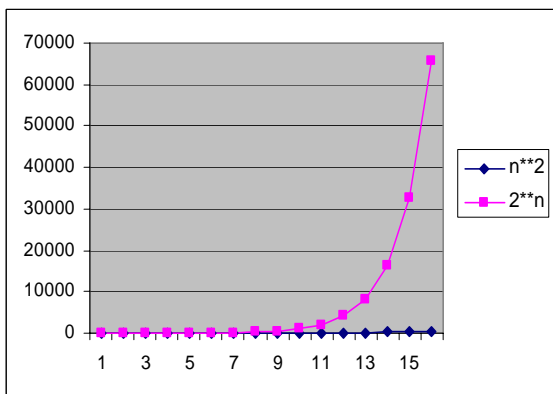


```
def fib(n):
    global numCalls
    numCalls += 1
    if n <= 1:
        return n
    else:
        return fib(n-1) + fib(n-2)
numCalls = 0
n = 5
print 'fib of', n, '=', fib1(n)

fib(5)
fib(4) + fib(3)
fib(3) + fib(2) + fib(2) + fib(1)
fib(2) + fib(1) + fib(1) + fib(0) + fib(1) + fib(0) + fib(1)
fib(1) + fib(0) + fib(1) + fib(1) + fib(0) + fib(1) + fib(0) + fib(1)

def fib1(n):
    global memo
    global numCalls
    numCalls += 1
    if not n in memo:
        memo[n] = fib1(n-1) + fib1(n-2)
    return memo[n]
memo = {0:0, 1:1}
```