1.b: refer to PSOne.java

1.c, output:

The answer is: 3125.

1.d:

Cumulative Time (in seconds) of MysteryFunction: 0.000009

Cumulative Time (in seconds) of Main: 0.185697

1.e:

return argA to the power of m.

where m is the sum of the i\*2^[pos],

where i the every bit of the binary argB,

and [pos] is the position of that bit, counting from right to left, starting from 0.

2. a: refer to PSOneQ2a.java

2. b: asymptotic performance: O(n)

2. c:

|  |  |
| --- | --- |
| value of n | cumulative running time of method f() repeated 100 times |
| 1 | 0.006553 |
| 10 | 0.255246 |
| 20 | 0.703709 |
| 50 | 1.95278 |
| 100 | 4.046263 |
| 200 | 8.570927 |
| 500 | 22.884827 |

2.d: T(n) = 0.046\*n. Thus the constant is 0.046

3. Output:

The angle between Shake\_mystery and mystery is: 0.3422938876618301

The angle between Kafka and mystery is: 0.7335559793361628

Thus, the work is belongs to Shakesphere