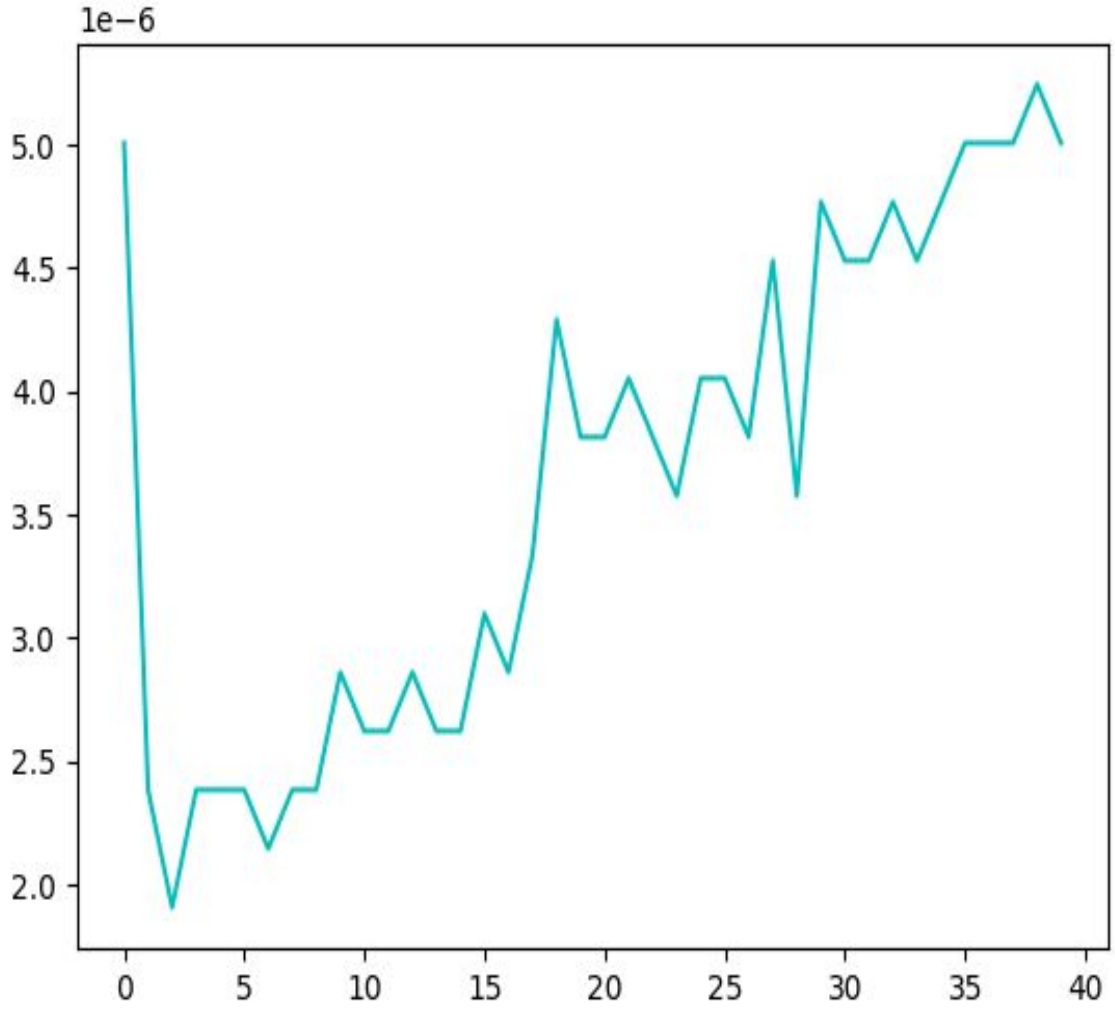
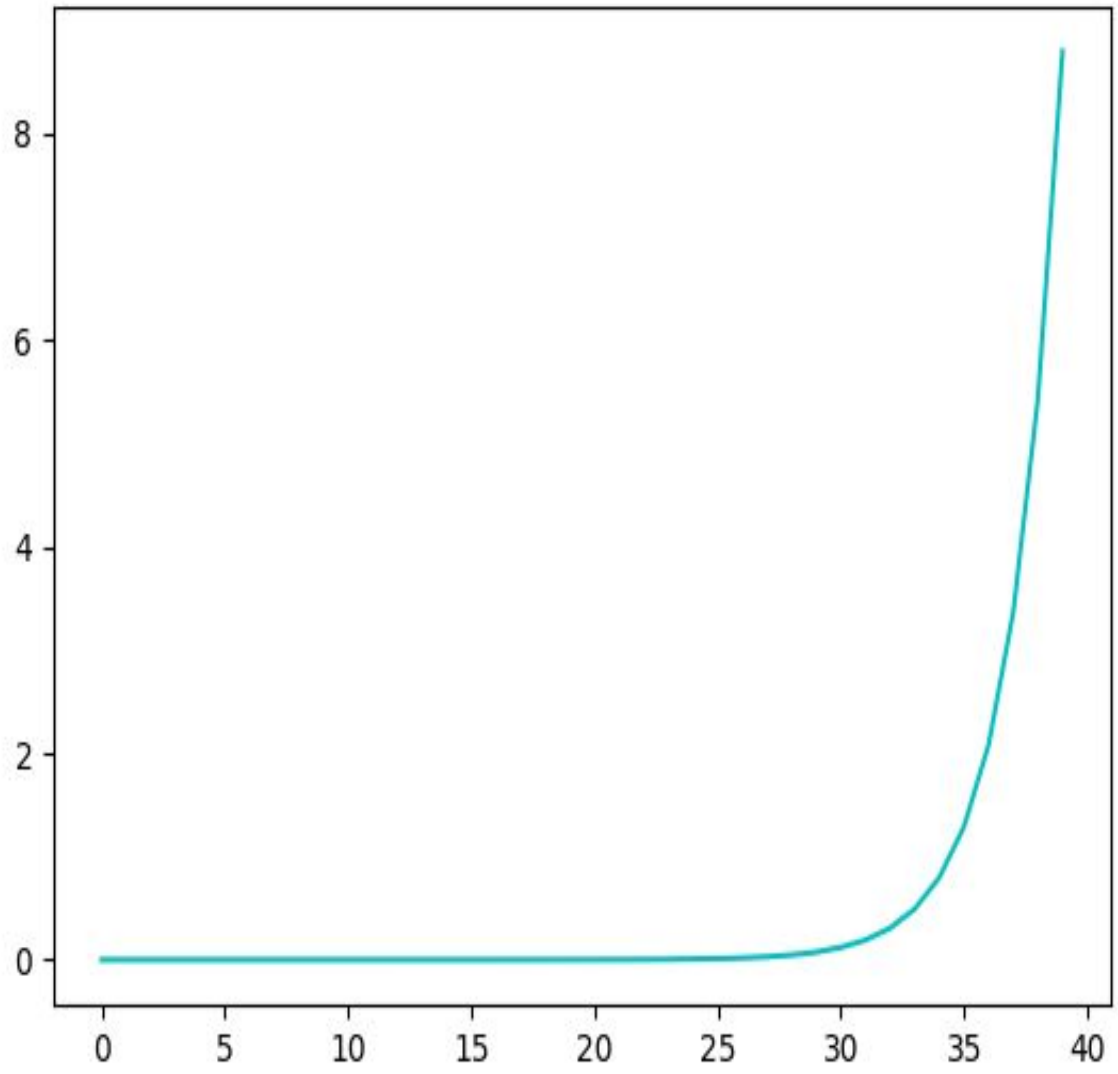
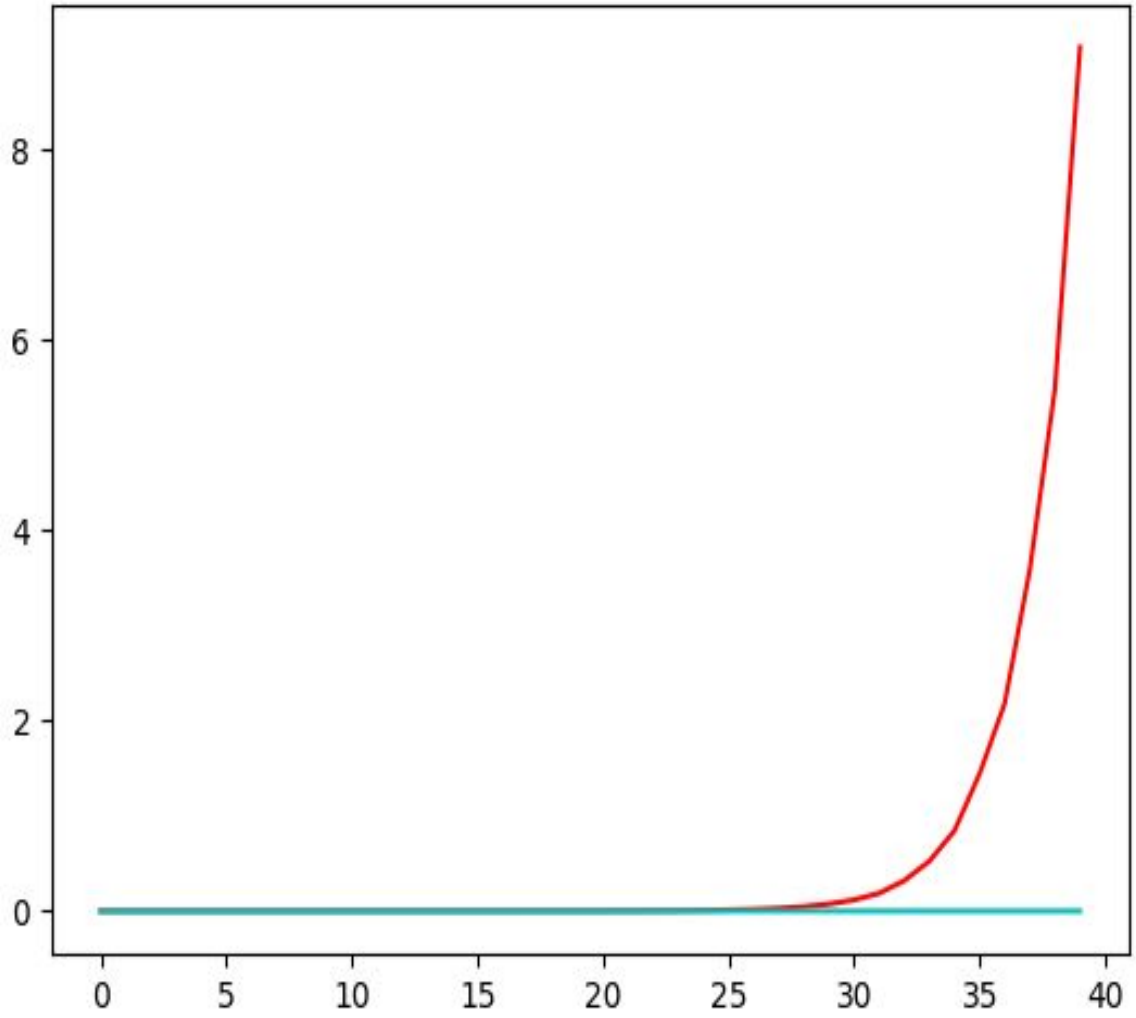


This is iteration method runtime vs the problem size graph in Python compiler

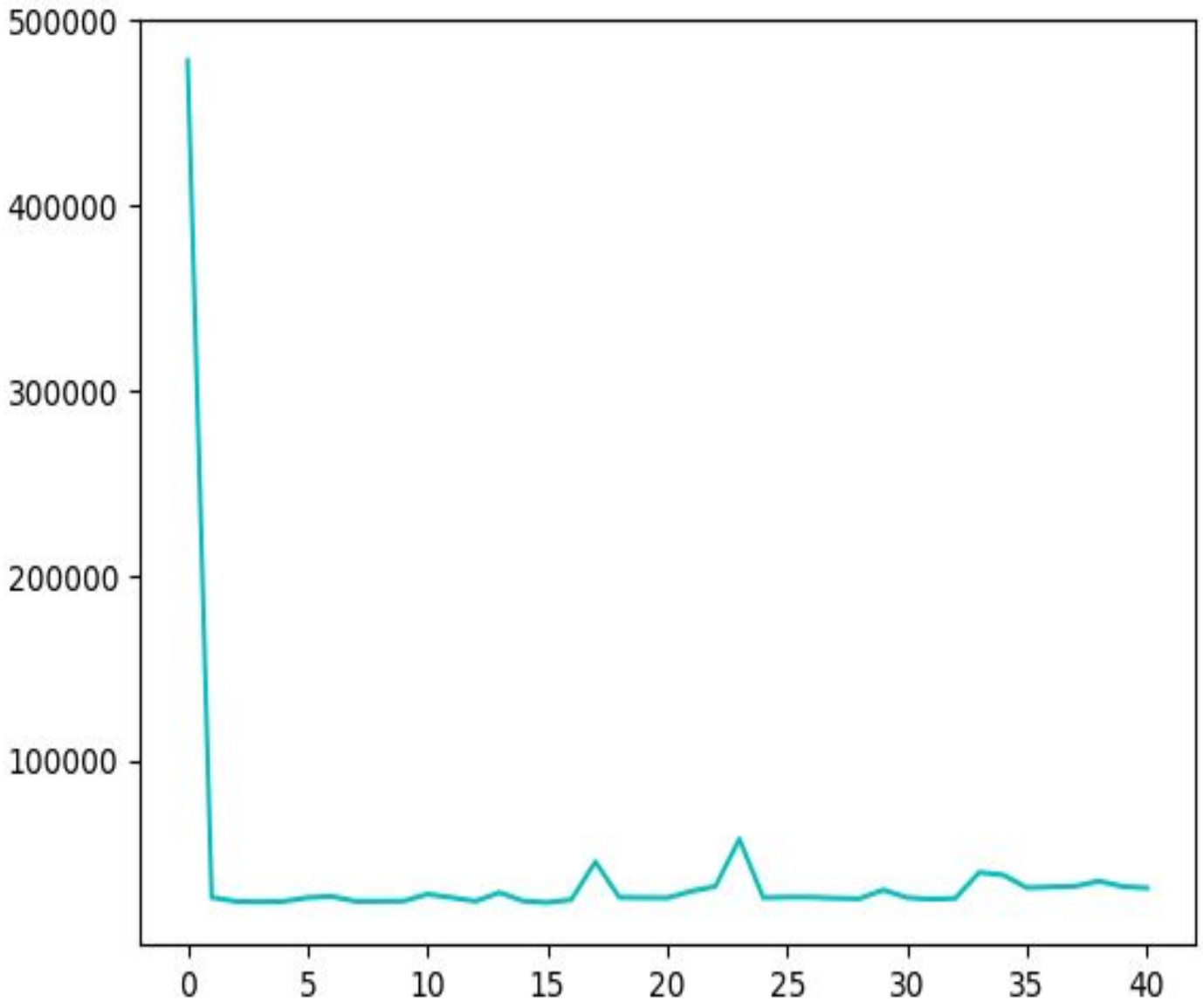


This is recursion method runtime vs the problem size graph in Python compiler

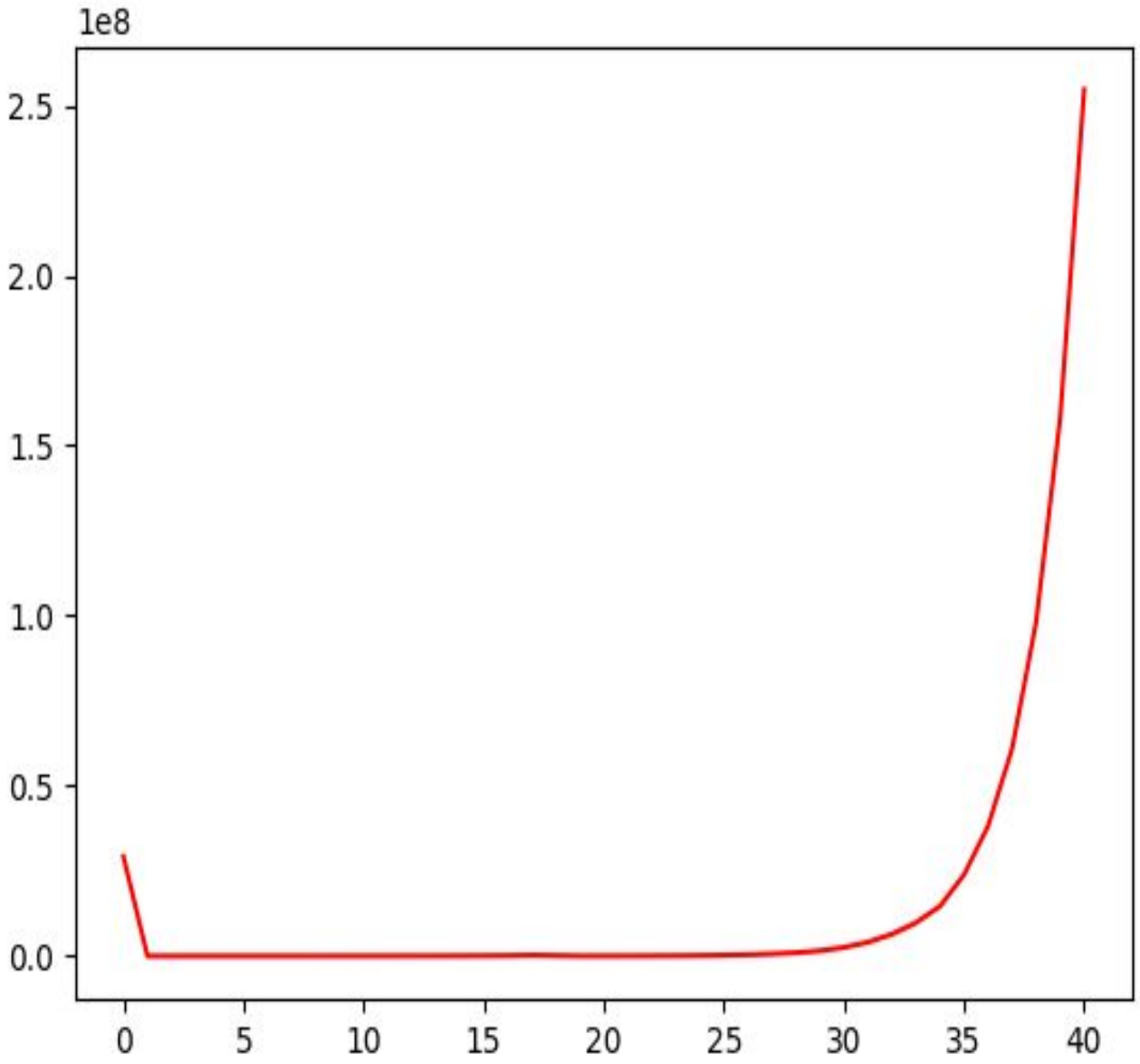


This is recursion and iteration method runtime vs the problem size graph in Python compiler

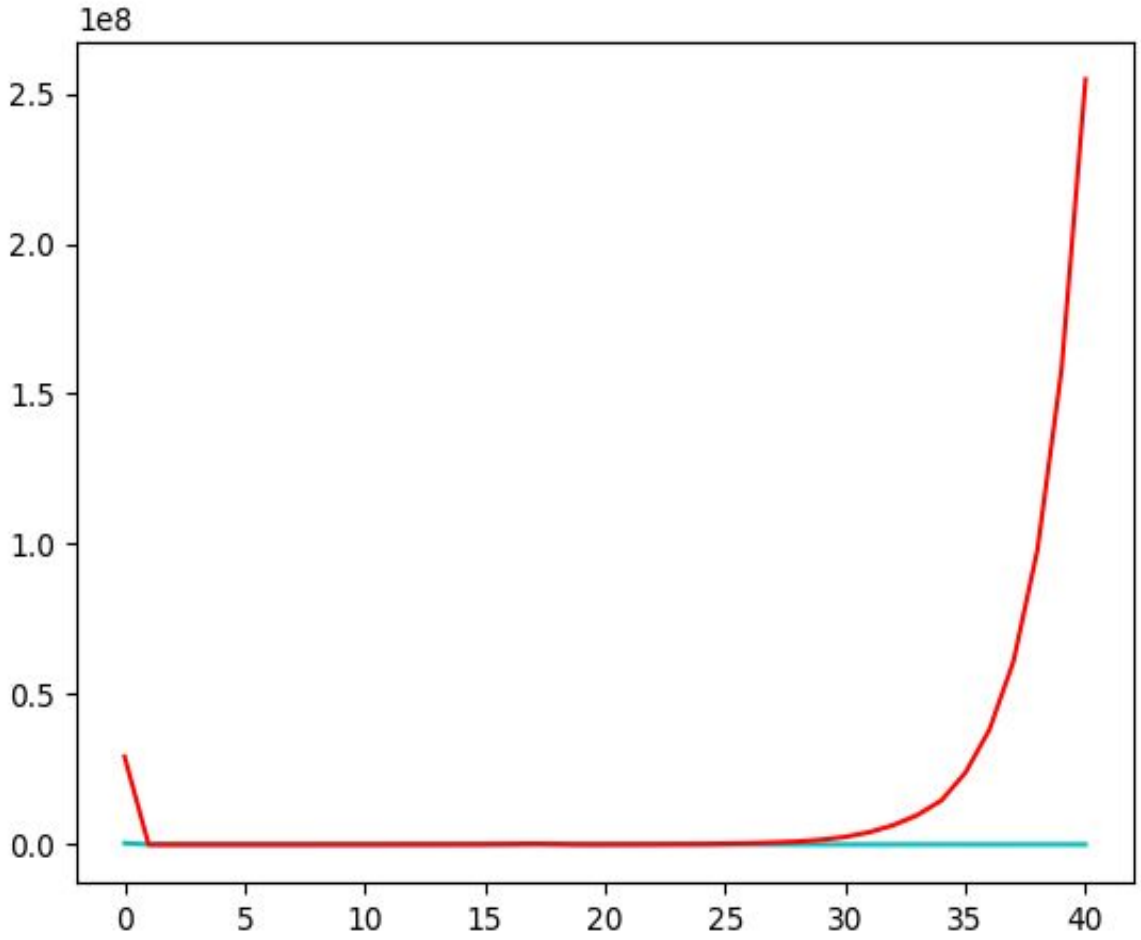
Iteration in blue color
Recursion in Red color



This is iteration method runtime vs the problem size graph in java JVM compiler



This is recursion method runtime vs the problem size graph in Python compiler



This is recursion and iteration method runtime vs the problem size graph in Java JVM compiler

Iteration in blue color
Recursion in Red color

(a) Is there a difference in the runtime between the two implementations when the problem is small?

No ,according to the graph bot compilers are take approximately same run time

(b) Is there a difference in the runtime between the two languages?

iterative: - negligible difference

Recursive:- yes

(c) Is there a difference between the way the runtime changes in the two languages?

Shape of the curve is similar but run times are differ

(d) “If the problem is small both algorithms are useful”. Do you agree with this statement? Justify your answer.

Yes

According to the graph both algorithms are taking approximately same runtime and that time is very small compared to big problem .

(e) “If the problem is large fib r is not useful”. Do you agree with this statement? Justify your answer

Yes

The problem become large then its take more time compare to iterative method

Therefor compared to iterative method recursion method not useful