**Answers:**

Q1:

-----------[1.1]

Q2:

From [1.1] in Q1:

Q3:

From [1.1] in Q1:

For , :

Similarly, for second iteration:

Q4:

-----------[4.1]

Not convergent as we cannot see .

Q5:

-----------[1]

Not convergent as we cannot see .

Q6:

Table

Description automatically generated with medium confidence

Q7:

Chart

Description automatically generated

Fig 1: The number of iterations for convergence versus the value of graph.

Then the value of for which it results in the fastest convergence is 1.1 (from Fig 1).