**ELEC\_ENG 202 – 0 — INTRODUCTION TO ELECTRICAL ENGINEERING**

**FINAL EXAM**

**Eliseu Antonio Kloster Filho**

**1a)**

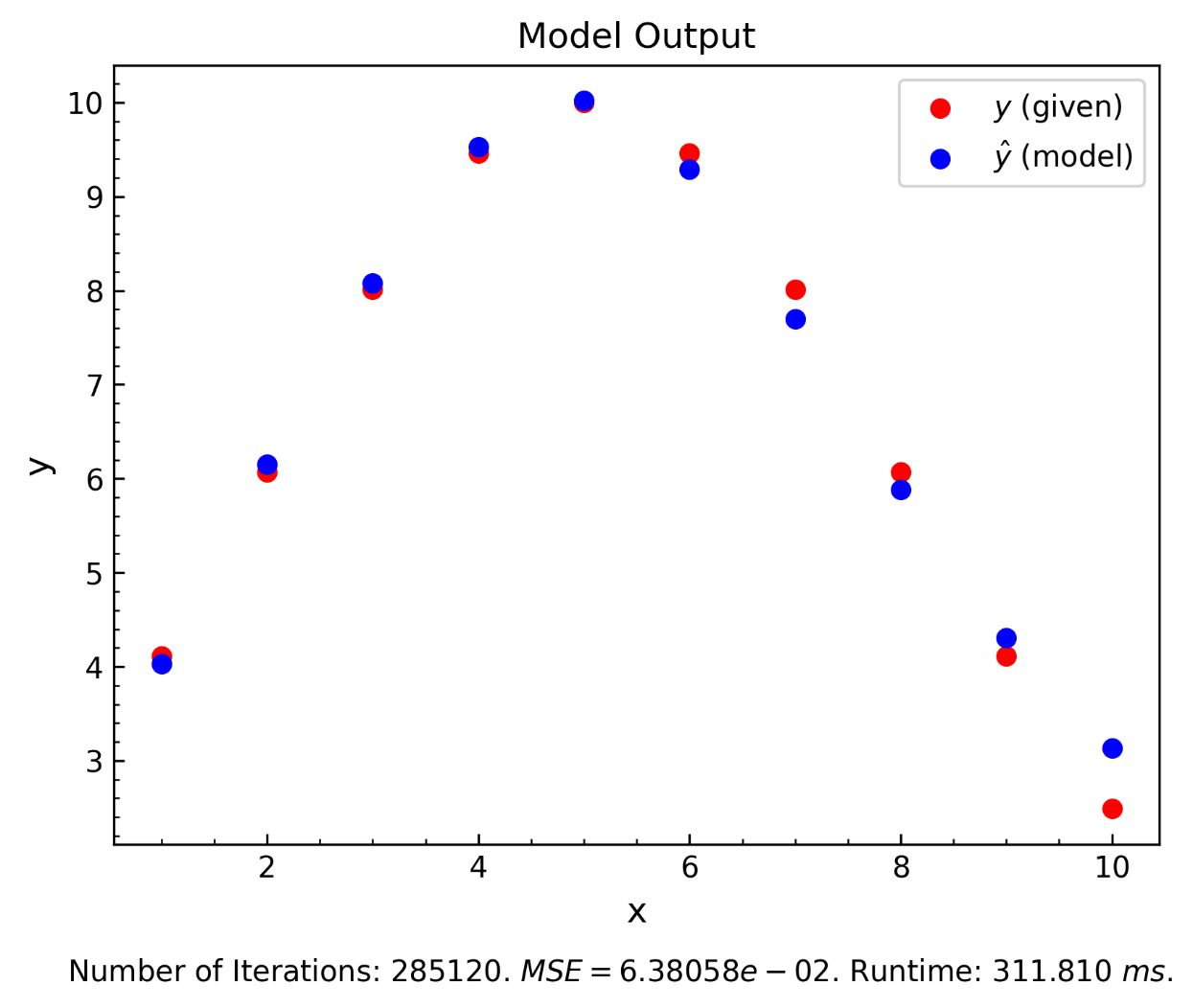
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Figure 1: Model output for question 1a.

**1b)**

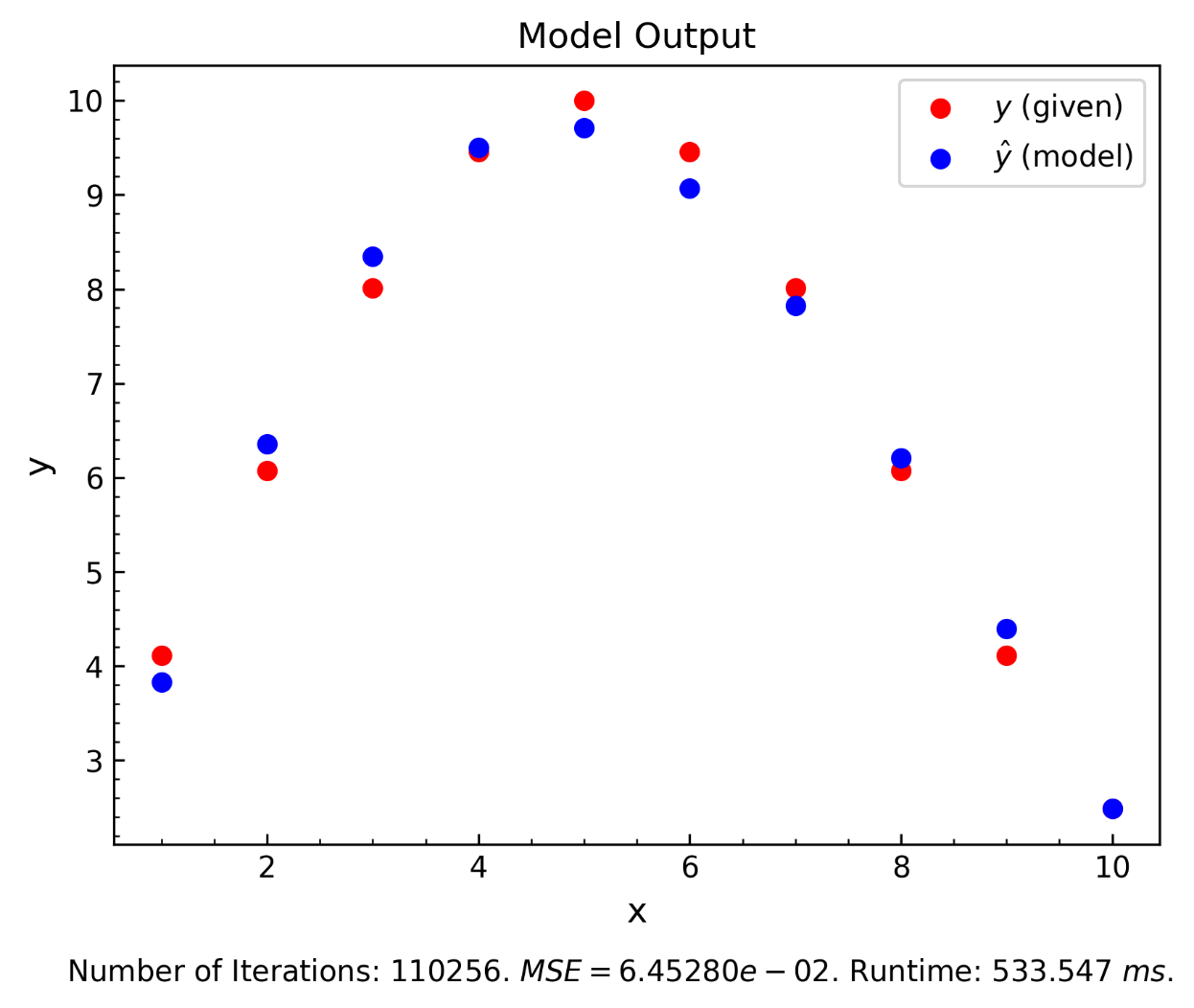
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Figure 1: Model output for question 1b.

**2)**

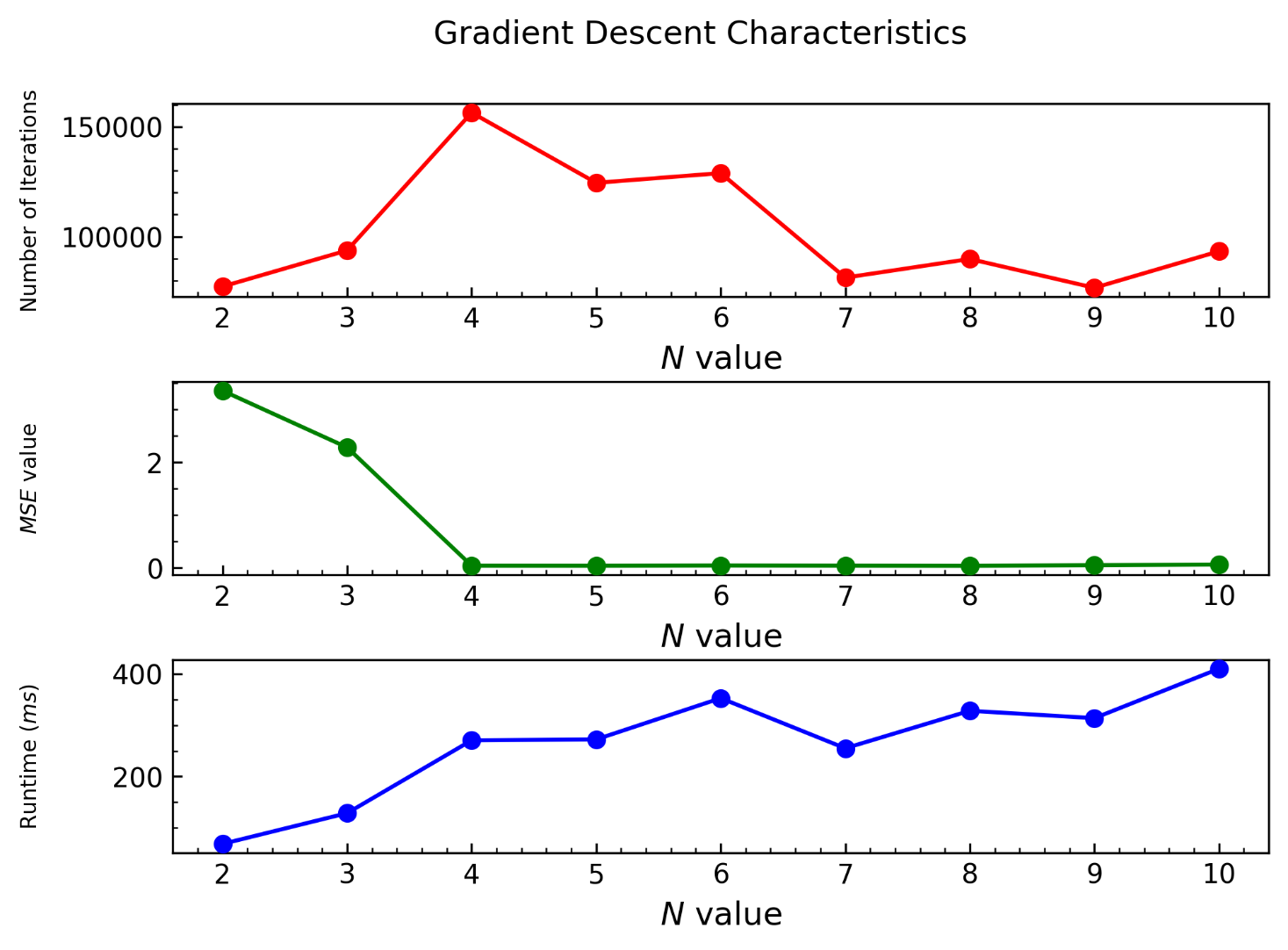
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Figure 1: Gradient Descent Characteristics for question 2.

For this problem, 4 seems the optimal number of hidden nodes. Above 4 nodes, the MSE value stays around the same for every N, while the runtime increases compared to the lower N values. The number of iterations was a bit higher than the others, but nothing too far away from the total average, and assuming we have the necessary computational power, the runtime (which was good) is a more relevant characteristic.

I spent 3h doing this assignment in Python. Then, since I had some free time and everything was working, I spent another 9h coding in C (3 of which were spent tracking down a bug that boiled down to a missing parenthesis in my activation function). In total, I probably spent around 12h in this final.