About the assignment: questions 11.6 and 14.11 were worth 2 marks each; the other questions were worth 1 mark each.

Here are some comments from the TA about the assignment:

11.1. I did not give any points if I saw the phrase "a function with cycles of period x MAY OR MAY NOT have cycles of period y". I understand that almost everyone understood this problem, but I want to make the point that in math, saying a function may or may not have a property is completely without content. Unfortunately, we have to be pedantic here, because literally, everything may or may not have any property we like. For example, literally, I may or may not be made of banana peels. In particular, I am not made of banana peels.

I gave half a mark to solutions that were worded a little better. Many people had the following line of reasoning:

Since 56 preceeds 48 in the Sarkovskii ordering, Sarkovskii's theorem doesn't say anything about whether or not a function with a 48-cycle can have a 56-cycle. Therefore, it might not have a 56-cycle.

This technically isn't wrong, but it's actually the same as saying "we don't know". The best answer uses the theorem on page 138 that gives the existence of a function with a function with a 48-cycle and no 56-cycle. Then you can say unambiguously, YES, it is certainly possible that a continuous function with a 48-cycle can be without a 56-cycle.

11.4. I was lenient here because I think showing that the second graph does not have cycles of any period other than 1, 2, and 4 is pretty hard. I decided that it would be enough to show that the first graph has a 3-cycle, and therefore has a cycle of any period.

11.6. Some students lost marks for showing, for example, that F^5([1,2]) intersected with [1,2] was just the set {2}, without mentioning that 2 cannot be part of a 5-cycle. Also, it's not correct to say that since F decreases on [4,5], then F^5 decreases on [4,5]. One has to also check that F^2 decreases on the set F([4,5]), and that F^3 decreases on the set F([4,5]), and so on.

14.1. Some students did not describe or draw what the sets look like. A large amount of students claimed that the set in 14.1 a) was $\{K \times K \mid y < 1-x\}$, where K is the Cantor middle thirds set. This is wrong.