

Comments on MATH150 Mid-term Exam. (2007-08 Spr.)

We try to give you some feedback on your performance of MATH150 Mid-term examination. Summary: The means of the L1-L4 range from 40.23 to 47.47 and the SD are all around 20.

1 Multiple choices:

Q1 (direction field), 2 (Separable Eqn) and 8 (existence) are amongst the best answered, with approximately over 2/3 correct rate. The performance on Q3, Q5, Q6, Q9 and Q10 are acceptable. About half of the students get the correct answers. The performance on Q4 and Q7 are not good. For Q. 7 this may due improper understanding of the linearly independence.

2 Long Questions:

The performance on Q. 11 (you set) is disappointing. Roughly speaking, about half of the students can do part (a) only and some could not even get the equation correctly. Those who got part (a) correct have at least 20% could not integrate. Many got tangent or sine/cosine functions in the integration, which is really very far from the correct answer. It is surprising to see so many could not integrate. Those who could always forget to put an absolute value signs. So only about less than 40% got this completely correct. The only valid explanation about the performance of this question is students forgot what they have learnt and did not bother to revise their A-level or equivalent level knowledge.

For question 12, the performance is barely acceptable. Most of them can start with the first step of the method of reduction of order. Around 50% of the students can obtain the differential equation satisfied by the unknown function. On the other hand, a few of them try to solve it by using characteristic equation, which is a method that only works for DEs with constant coefficients.

For question 13, most students can distinguish the solutions having oscillation or not, but a lot of students cannot separate the real root case and the double root case.

In question 14, students have the best performance in part (b). For part (c), they have a huge difficulty on solving the two by two systems of linear equations. For part (a), it seems that they don't have any idea on using Chain rule. Most of the students just jump to the final answer from a step far away from the answer without giving any valid explanation.

The performance on Q. 15 is not surprised. Majority could do part (a) but did not say the proportionality constant is positive or negative. A small percentage of students could not do this part. Students generally found explaining

the physical meaning of the equation that they wrote down difficult in part (b). Many wrote down unrecognizable writing or figures. Only no more than 20% could get this part completely correct. Writing down an equation with minimal or no explanation will be given 3 points. Again only a small percentage of students could do part (c), and even smaller percentage could do (d). Many tried to do (e) with ad hoc reasoning which may or may not be awarded points.