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Feedback on MATH35001 exam Jan 2017

- Q1: Mainly fine. Points tended to be lost for getting the sign of the traction wrong (for the obvious reasons!) and not evaluating it on the boundary ($x_2=0$). The latter issue also featured in the "direction of rotation" questions. If you don't evaluate the vorticity on the wall (at $x_2=0$) you can't actually determine which way the particle rotates -- miraculously many of you managed to do it anyway (by guessing, I assume. "Nul points" (as we don't say in German) for that).
- Q2: Generally fine -- some of you decided to answer a question that wasn't actually on the exam paper; the one where there is no second plate! Memorising exam questions and their solutions doesn't always work...
- Q3: Classical bookwork question. An amazing number of students just jotted down arguments in a random order (e.g. cancelling du/dx long before its zero-ness is established etc.). I tended to mark this generously, though I really shouldn't have -- this is cowboy maths! Many people lost points for genuinely sloppy/incomplete arguments.
- Q4: Generally fine. If I ask you to check that the continuity equation is satisfied you can bet your bottom dollar (or Euro) that I'll award points for doing this (and withhold them if you don't...). A ridiculous number of you worked backwards through the question where you were supposed to show that the velocity field is given by what I stated (as a help!). Fair enough -- you caught me out. I obviously meant (but didn't say explicitly) that you should solve the ODE and apply BCs. To avoid law suits I awarded full marks for this but ONLY if you had actually done a proper job, i.e. also checked that the stated solution satisfies the BCs, say. Of those who did solve the ODE, you wouldn't believe the number of people who used an $\exp(\lambda r)$ ansatz to solve the non-constant coefficient (Euler) ODE. I'll have to have a word with your first year lecturer -- that German bloke with a beard...
- Q5: Lots of extremely woolly arguments were used in the dimensional analysis part of the question. I tended to be as generous as I could... The rest tended to be OK.