MATH 216 PROBLEM SET 2

This set is due by noon on Friday, October 14. Hand in your homework to me by email. If you handwrite your solutions, you can scan them in; just ask me how to do this easily.

Please *read all of the problems*, and ask me about any statements that you are unsure of, even of the many problems you won't try. Many of you have seen much of this material, and I don't want you to waste your time; please just work on problems that you haven't thought through before. Hand in at least twelve solutions, where each "-" problem is worth half a solution. If you are ambitious (and have the time), go for more. If you have already seen this material before (graduate students only!), then you need only do five problems, but they should be five very interesting problems. (If you have seen everything before, just talk to me, and I'll excuse you completely.) You should try the starred problems unless you have seen them before. Try to solve problems on a range of topics (e.g. at least one from each section you haven't seen). You are encouraged to talk to each other, and to me, about the problems. Some of these problems require hints, and I'm happy to give them!

Problems (from the October 5 version): 3.2.A-, 3.2.C-, 3.2.E-, 3.2.F*, 3.2.H*-, 3.2.I, (think through 3.2.J but don't do it), 3.3.A-, 3.3.B-, 3.3.C*, 3.3.E-, 3.3.F, 3.3.H-, 3.3.I, 3.3.J, 3.4.A*, 3.4.B*, 3.4.C*, 3.4.D*, 3.4.E, 3.4.F-, 3.4.G-, 3.4.H-, 3.4.I, 3.4.J,3.4.K, 3.4.L, 3.4.M, 3.4.O-, 3.5.B 3.5.D*, 3.5.E*, 3.5.G* (Darij Greenberg pointed out that the statement is garbled, and this will be fixed in the next version — do the intended problem to show left-exactness of $\mathcal{H}\mathrm{om}$), 3.5.I*, 3.6.B, 3.6.C, 3.6.D-, 3.6.F, (if you're curious please try 3.6.G and let me know how hard it is), 3.7.A*, 3.7.B (better hint from Darij Greenberg: show it is an isomorphism by showing that it is injective and surjective), 3.7.C, 3.7.D.

If you feel like other problems are interesting enough that they should be done, please do them, and I'll count them for (at least) half a problem.

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Date: Thursday, October 6, 2011.