Logistical Info about the Final

First, a rundown of what kinds of questions will be on your final.

The new stuff

This will account for approximately 20%–30% of the points.

- one (perhaps multi-part) question on the divergence theorem (§16.9);
- one (perhaps multi-part) question on Stokes' theorem (§16.8);

Test 4 stuff

This will account for 20%–45% of the points.

- one question like number 3;
- ≥ 1 line integral (with one requiring Green's theorem);
- ≥ 1 surface integral/flux problem.

Note that these can be combined with the new stuff in obvious ways. For example, you may have to find a line integral using the old methods for part (a) of a question, and then find the same line integral in part (b) using Stokes' theorem.

The old stuff

This will account for the remaining points, and not all of the listed concepts will be tested and/or tested equally.

- using double and triple integrals (which may or may not include polar, cylindrical, or spherical coordinates) to find areas/volumes and volumes/hypervolumes, respectively (e.g. questions 2 and 4 on exam 3);
- directional derivatives/gradients (e.g. questions 3b, 3c, and 3d on exam 2);
- optimization of 2-variable functions (e.g. question 4 on exam 2);
- tangents/normals/curvature/etc. of vector-valued functions (e.g. question 3 on exam 1).

And now, some random info not covered above.

Miscellany

- there **won't be** any matching questions (e.g. question 4 on exam 1);
- there **will most likely be** true/false questions; if there are, it will **only** be about the Chapter 16 stuff;
- you **won't** have to know trig identities;
- other than for trig identities, there **will not** be a formula sheet.