Math 2415

Friday Problem Session on 15.9, 16.1-16.2, Final Exam Review

This week we will do problems from 16.1-16.2 as well as a review for the Final Exam of material from 15.3, 15.6-15.9.

Note: Based on past experience, about 50% of the points on the final exam will be on material from 15.3 onwards. In the next problem session we will do more review, including from earlier parts of the course.

1. 15.9.7. Also calculate $\iint_R x\,dx\,dy$ where R is the image of S.
2. 15.9.11. Also calculate $\iint_R y\,dx\,dy$
3. 15.9.17
4. 16.1: 11, 12
5. 16.2.6
6. 16.2.11
7. 16.2.17
8. 16.2.27 Evaluate line integral only. Don't graph vector field.
9. Spring 2014 Final Exam # 8
10. Fall 2009 Exam II # 4
11. Fall 2014 Final Exam # 6
12. Fall 2014 Final Exam # 8
13. Spring 2014 Final Exam # 6
14. Spring 2014 Final Exam # 7
15. 15.Review.30
16. 15.Review.32
17. Show that in spherical coordinates $|\frac{\partial(x,y,z)}{\partial(\rho,\phi,\theta)}| = \rho^2 \sin\phi$. This calculation justifies the formula for triple integration in spherical coordinates:

$$\iiint_E f(x,y,z)\,dV = \iiint_E f(\rho\sin\phi\cos\theta, \rho\sin\phi\sin\theta, \rho\cos\phi)\,\rho^2\sin\phi\, d\rho d\phi d\theta.$$