Math 2415

Friday Problem Session on Exam One Review

Exam Revision. Do whatever past exam problems your group wants to. Here are some suggestions to get started:

1. (From Fall 2006 Exam 1) Suppose that

$$\mathbf{r}(s, t) \; = \; (1 + 2s - 3t, 5 + s, -3 + 4s - t)$$

   is a parametrization of a plane. Find a level set equation for this plane, *i.e.*, an equation of the form $ax + by + cz = d$.

2. (From Fall 2006 Exam 1) Show that the parametrized curve $\mathbf{r}(t) = (\cos t, \sin t, 1)$ lies on the following two surfaces:

   (a) $\rho = \sqrt{2}$ (in spherical coordinates)
   (b) $z = r$ (in cylindrical coordinates).

   Also sketch both surfaces and the curve in the same figure.

3. (From Fall 2006 Exam 1) Show that the volume of the parallelipiped determined by the three vectors $\mathbf{u}$, $\mathbf{v}$ and $\mathbf{w}$ is $|\mathbf{u} \cdot (\mathbf{v} \times \mathbf{w})|$.

4. Fall 2016, Exam 1

5. Spring 2016, Exam 1

6. Fall 2015 Exam 1, problems 1,2,3,5,7