Math 244 Midterm 1: In-class portion

Monday, November 19

Name: _____

This is the in-class portion of the first midterm. It is worth 70 points, with the take-home portion being worth 30 points for a total of 100 points. When you are finished with the in-class portion of the exam please bring it to me to receive the take-home portion, which will be due Wednseday, November 21.

No electronic devices are permitted. Carefully read each question and understand what is being asked before you start to solve the problem. Please show all your work and circle or mark in some way your final answers.

$$\oint_C \vec{F} \cdot \vec{T} \, \mathrm{d}s = \iint_D \operatorname{curl} \vec{F} \cdot \vec{k} \, \mathrm{d}A$$

$$\oint_C \vec{F} \cdot \vec{n} \, \mathrm{d}s = \iint_D \operatorname{div} \vec{F} \, \mathrm{d}A$$

$$\mathrm{d}s = |\vec{r}\,'(t)| \, \mathrm{d}t$$

$$\mathrm{d}\sigma = |\vec{r}_u(u,v) \times \vec{r}_v(u,v)| \, \mathrm{d}u \, \mathrm{d}v$$