Erratum

Multivariable Calculus and Vector Analysis

– Math 2374 CSE –

Midterm 1 - Spring 11:

(Pb-1) The unit vector should be $(2/3, 1/3, 2/3)$, because we are looking for the direction of greatest decrease.

(Pb-2) b) The sample answer is wrong: it should be $(7, 1)$ rather than $(-1, 1)$ for the gradient of the function f and the approximate value of the function should be -0.5.

(Pb-4) The value of a is incorrect. $1/7 - 14/7 = -13/7$. The gradient should be $< -13/7, 1/7 >$.

Midterm 1 - Fall 10:

(Pb-7) We should be using the product rule here, meaning that the terms involving partial derivatives w.r.t. u and v should be multiplied by xy. This error occurs in both components of the gradient vector. Because this gradient is evaluated at the point $(1, 1)$, the answer to part b) is coincidentally unaffected and is still correct.

Midterm 1 - Fall 10:

(Pb-6) c). The first range of angles, $\arccos(-5/(2\sqrt{13}) < \theta < \pi$, is correct. However, the second range, $0 < \theta < \pi - \arccos(-5/(2\sqrt{13})$, is not correct as it will result in positive values for the directional derivative, and we want only the angles that will give values less than or equal to -5.

Midterm 2 - Spring 10:

(Pb-4) . There is missing $-$ sign in the result and the correct answer should read $\frac{e}{2} - 1$.

Midterm 3 - Spring 11:

(Pb-1) In the solution of problem 1, $rdzdrd\theta$ should be $zr^3\cos^2(\theta)dzdrd\theta$.

(Pb-2) The bounds for the parametrization of $\Psi(u, v) = (u, 0, v)$ should be $0 \leq u \leq 2$ and $0 \leq v \leq 1 - u/2$, not $0 \leq u \leq 1$ and $0 \leq v \leq -u + 1$. The curl of the function should also read $\left(x - xe^{xz}, -y - y^2, ze^{xz} + 2yz\right)$ and not $\left(x - xe^{xz}, -y - y^2, ze^{xz} - 2yz\right)$. Note that the final answer is coincidentally unaffected and is still correct but you need to change the bounds and the curl.

Midterm 3 - Fall 10:

(Pb-3) After the change of coordinates, r should go from 0 to $\sqrt{2}$, not from 0 to 2. The region is a cylinder of radius $\sqrt{2}$. This also affects the final answer. It should be $4\pi(e^2 - 1)$, not $4\pi(e^4 - 1)$.

Please send an email to gfaye@umn.edu if you find any error in the corrections of the old midterms posted on Moodle.