

MATH 251, Section _____
Thursday, Nov. 7, 2013

Quiz 9 (Sections 14.1, 14.2).
Dr. M. Vorobets

NAME (print): _____

No credit for unsupported answers will be given. Clearly indicate your final answer.

1. [2 pts.] Find the gradient vector field for the function

$$f(x, y, z) = \sqrt{x} \sin(y^2 + z^2)$$

2. [4 pts.] Evaluate the line integral $\int_C xy^2 ds$ if C is the left half of the circle $x^2 + y^2 = 16$.

3. [4 pts.] Find $\int_C \vec{F} \cdot d\vec{r}$ if $\vec{F} = (y+z)\vec{i} - x^2\vec{j} - 4y^2\vec{k}$ and C is given by $\vec{r}(t) = t\vec{i} - t^3\vec{j} + 2t^2\vec{k}$, $0 \leq t \leq 1$.