

MATH 251, Section _____
Thursday, Sept. 23, 2010

Quiz 4 (Sections 11.7, 12.1, 12.2).
Dr. M. Vorobets

NAME (print): _____

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

1. [3 pts.] Find the equation of the normal plane for the curve $\vec{r}(t) = \langle 2 \sin(3t), t, 2 \cos(3t) \rangle$ at the point $(0, \pi, -2)$.

2. [2 pts.] Find $\frac{\partial^2 f}{\partial x \partial y}$ if $f(x, y) = e^{xy}$.

[more problems on back]

3. [5 pts.] Find the curvature of the curve $\vec{r}(t) = \langle 1 + t, 1 - t, 3t^2 \rangle$.