NAME (print): _____

No credit for unsupported answers will be given. Calculators can be used for simple arithmetic operations only! Clearly indicate your final answer

1. *[3 pts.]* Find $\vec{r}(t)$ if $\vec{r}'(t) = t^2\vec{\imath} + \cos(t)\vec{\jmath} - te^t\vec{k}$ and $\vec{r}(0) = \vec{\imath} - 2\vec{\jmath} + \vec{k}$.

2. *[4 pts.]* Find the curvature of the curve $\vec{r}(t) = <1+t, 1-t, 3t^2>$.

[more problems on back]

3. *[3 pts.]* Sketch the domain of the function

$$f(x, y) = \sqrt{x^2 + y^2 - 1} + \ln(4 - x^2 - y^2)$$