

Math 173 - Quiz 5

February 26, 2015

Name _____

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (4 points) Find the curvature function for the curve described by

$$\vec{r}(t) = 2t\hat{i} + t^2\hat{j} - \frac{1}{3}t^3\hat{k}.$$

2. (4 points) Find the arc length function $s(t)$ for the line segment described by

$$\vec{r}(t) = t\hat{i} + (t + 2)\hat{j} + (3t - 5)\hat{k}, \quad 0 \leq t \leq 1$$

and write \vec{r} in terms of the parameter s .

3. (2 points) Determine the domain of $f(x, y) = \sqrt{x^3 + y}$.