

Math 233 - Quiz 5

September 24, 2026

Name _____

Score _____

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

1. (6 points) Let $\vec{r}(t) = (t^2 - t)\hat{i} + \frac{1}{6}(4t - 1)^{3/2}\hat{j} + 5\hat{k}$. Compute the arc-length parameter s starting from $t = 1$. Then solve for t in terms of s .

2. (4 points) Let $\vec{r}(t) = -\cos 3t\hat{i} - \sin 3t\hat{j} + 4t\hat{k}$. Compute the curvature function $\kappa(t)$.