

Quiz 3

Name: \_\_\_\_\_

Math 241: Spring 2023

Section: \_\_\_\_\_

---

**Problem 1.** (4 points) Give a smooth parametrization of the quarter circle in the  $xy$  plane with endpoints  $(1,0)$  and  $(0,-1)$ , and center the origin. (Remember to show the parametrization is smooth.)

**Problem 2.** Consider the curve  $r(t) = \frac{1}{3}(1+t)^{\frac{3}{2}}\mathbf{i} + \frac{1}{3}(1-t)^{\frac{3}{2}}\mathbf{j} + \frac{1}{2}t\mathbf{k}$  for  $-1 \leq t \leq 1$ .

(a) (3 points) Find the velocity vector.

(b) (3 points) Find the length.