

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

**Calculus 251:C3    Quiz #6 - 6/9/2021    Topic: Sections 13.2-13.3**

**Instructions.** Answer the questions in the spaces provided or on your own paper, then scan and upload to Canvas. Show and label all of your work. Responses with no work may receive no credit even if the answer is correct.

7 pts

- (1) Solve the differential equation  $\vec{r}''(t) = \langle 4, 0, -6t \rangle$  given the initial conditions  $\vec{r}'(1) = \langle 4, 4, 4 \rangle$  and  $\vec{r}(1) = \langle 5, 5, 5 \rangle$ .

5 pts

- (2) Find the length of the curve  $\vec{r}(t) = \left\langle \frac{4}{3}t^{3/2}, \frac{1}{2}t^2, 2t \right\rangle$  from  $t = 1$  to  $t = 5$ .  
Hint: the answer is an integer!