MA 261 Quiz 3

January 29, 2019

If you do not know how to do any one of these problems, circle **"(E) I don't know"** as your answer choice. You will receive **two points** for doing that. **Each problem** is worth **five points**. You get **two points** for writing your **full name** and **three points** for writing your **section number**.

Problem 3.1. Consider the curve $\mathbf{r}(t) = \langle t, 3\sin t, 3\cos t\rangle$. Find $\mathbf{r}'(t)$

(A) $\mathbf{r}'(t) = \langle 1, 3\cos t, -3\sin t\rangle$
(B) $\mathbf{r}'(t) = \langle t, 3\sin t, 3\sin t\rangle$
(C) $\mathbf{r}'(t) = \langle 1, 3, -3\rangle$
(D) $\mathbf{r}'(t) = \langle 1, 3, 3\rangle$
(E) I don't know how to do this

Problem 3.2. Find the arclength of $\mathbf{r}(t) = \langle t, 3\sin t, 3\cos t\rangle$ for $0 \leq t \leq 1$?

(A) $\sqrt{10}$
(B) 3
(C) $\sqrt{3}/2$
(D) 3π
(E) I don't know how to do this

Problem 3.3. Find the curvature of $\mathbf{r}(t) = \langle t, 3\sin t, 3\cos t\rangle$?

(A) $3/\sqrt{10}$
(B) $1/3$
(C) 1
(D) $3/10$
(E) I don't know how to do this