

Math 102-37-Term162-Quiz.4

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

Serial#: \_\_\_\_\_

1. Compute the arclength of the graph of  $f(x) = \frac{2}{3}(x^2 + 1)^{3/2}$   
on the interval  $[1, 4]$ .

2. Find the curve,  $y = f(x)$ , whose arclength on  $[0, \pi/4]$   
is given by  $L = \int_0^{\pi/4} \sqrt{\sec^2 x} dx$ .

3. Let  $a_n = \frac{3n + 2}{5n + 1}$  for  $n \geq 1$ .

(i) Find  $L = \lim_{n \rightarrow \infty} a_n$

(ii) Find  $N \in \mathbb{N}$  such that for all  $n > N$  we have  $|a_n - L| < 1/2$ .

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