Math 102- Quiz#8&9 –sec21 Name:

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1. Find the exact area of the surface obtained by rotating the curve about the x-axis.

$$x = \frac{1}{3}(y^2 + 2)^{3/2}, \qquad 1 \leqslant y \leqslant 2$$

2. Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \ln(n + 1) - \ln n$$

3- Determine whether the geometric series is convergent or divergent. If it is convergent, find its sum.

a. $\sum_{n=0}^{\infty}\left(\frac{}{3^{n+1}}\right)$

b. $\sum_{n=1}^{\infty}\frac{n-1}{3n-1}$

Math 102- Quiz#8&9- sec23 Name:

1. Find the exact area of the surface obtained by rotating the curve about the y-axis.

$$y = \frac{1}{4}x^2 - \frac{1}{2}\ln x, \qquad 1 \leqslant x \leqslant 2$$

2. Determine whether the sequence converges or diverges. If it converges, find the limit.

$$a_n = \ln(2n^2 + 1) - \ln(n^2 + 1)$$

3- Determine whether the geometric series is convergent or divergent. If it is convergent, find its sum.

a. $\sum_{n=1}^{\infty} \left(\frac{e^n}{3^{n-1}}\right)$

b. $\sum_{n=1}^{\infty} \frac{n(n+2)}{(n+3)^2}$