Quiz: 4 Math 102 Semester: 162 Duration: 40 minutes

Full Name: ID: Serial number:

1- Discuss the convergence-divergence of $\sum_{n=1}^{\infty}(n+1)\tan\left(\frac{1}{n}\right)$.

2- Write the number $0.32\overline{6}$ as a ratio of integers

3- Evaluate

$$\sum_{n=1}^{\infty} \frac{2}{3^n \cos(n\pi)}$$

4- Find the sequence of partial sum s_n

$$\sum_{n=0}^{\infty} \frac{1}{(4n+1)(4n+9)}$$

5- Discuss the convergence-divergence of following sequences:

$a)$ $\left\{\dfrac{1^2+2^2+3^2+\cdots+n^2}{4n^3+\sqrt{n}}\right\}_{n=1}^{\infty}$ $b)$ $\{(-1)^n\cos(n\pi)+\sin(n\pi)\}_{n=1}^{\infty}$ $c)$ $\left\{\dfrac{(-n)^n}{n!}\right\}_{n=1}^{\infty}$