MATH 182 (041) CALCULUS II WORKSHEET III

Solve the following:

1. Consider $\Phi = \sum_{n=1}^{\infty}\left(\frac{3}{(n+1)(n+5)}\right)$

A. Find the first five terms of the sequence of terms of the series.

B. Find the first five terms of the sequence of partial sums of the series.

C. Determine if Φ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

2. Consider $\Delta = \sum_{n=1}^{\infty}\left(\frac{3}{(n^2+1)}\right)$

A. Find the first five terms of the sequence of terms of the series.

B. Find the first five terms of the sequence of partial sums of the series.

C. Determine if Δ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

3. Consider $\Xi = \sum_{n=1}^{\infty}\left(\frac{3}{(n+1)}\right)$ Determine if Ξ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

4. Consider $\Psi = \sum_{n=1}^{\infty}\left(\frac{5}{\sqrt{n+2}}\right)$

A. Find the first five terms of the sequence of terms of the series.

B. Find the first five terms of the sequence of partial sums of the series.

C. Determine if Ψ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

5. Consider $\Theta = \sum_{n=1}^{\infty}\left(\frac{4}{\left(\sqrt{n+2}\right)^3}\right)$

Determine if Θ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

6. Consider $\Lambda = \sum_{n=1}^{\infty}\left(4n^{-0.75}\right)$ Determine if Λ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

7. Consider $\Gamma = \sum_{n=1}^{\infty}\left(\frac{2}{(n^2+7n+10)}\right)$

A. Find the first five terms of the sequence of terms of the series.

B. Find the first five terms of the sequence of partial sums of the series.

C. Determine if Γ converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

8. Consider $X = \sum_{n=1}^{\infty}\left(7n^{-1.1}\right)$ Determine if X converges or diverges. If it converges find what the sum is (if such is possible (you used the telescoping series method)).

9. Consider the sequence $f: \mathbb{N} \longrightarrow \mathbb{R}$ such that $f(n) = \frac{n^2}{n^4+2n^5}$ Determine if the sequence converges or diverges. If it converges find the real number to which the sequence converges.

10. Consider the sequence $f: \mathbb{N} \longrightarrow \mathbb{R}$ such that $f(n) = \frac{\ln(n)}{n}$ Determine if the sequence converges or diverges. If it converges find the real number to which the sequence converges.

11. Consider the sequence $f: \mathbb{N} \longrightarrow \mathbb{R}$ such that $f(n) = \frac{n}{\sqrt{n^4+3n^2+1}}$ Determine if the sequence converges or diverges. If it converges find the real number to which the sequence converges.