Write clearly, label your answers by problem number, and leave space between problems.
You may keep this list of questions.

1. Find the best linear approximation to $y = 1/(x + 2)$ at $x = 3$.

2. Use Newton's method with $x_0 = 5$ to compute x_1 and x_2 approximating the root of $f(x) = x^2 - 5$. Rational, rather than decimal, form will be best.

   Determine whether or not the following series converge absolutely, converge condition-ally, or diverge. Show the test, or tests, you have used to determine your answer.

3. $\displaystyle\sum_{n=0}^{\infty} (-1)^n \frac{n+1}{n+3}$

4. $\displaystyle\sum_{n=0}^{\infty} \frac{2^n}{(n+1)^n}$

5. $\displaystyle\sum_{n=0}^{\infty} \frac{2^n}{5^n + n}$

6. $\displaystyle\sum_{n=0}^{\infty} \frac{2^n}{5^n + (-2)^n}$

7. $\displaystyle\sum_{n=0}^{\infty} \left(\frac{-1}{\sqrt{3}}\right)^n$

8. $\displaystyle\sum_{n=0}^{\infty} \frac{n}{n^3 + 1}$

9. $\displaystyle\sum_{n=2}^{\infty} \frac{1}{n(\ln n)^2}$

10. $\displaystyle\sum_{n=0}^{\infty} \frac{n!}{(2n)!}$

11. $\displaystyle\sum_{n=0}^{\infty} (-1)^n \frac{n+1}{n^2 + 3n}$

———— The End ————