Problem Set 1 Calc 3 Due 9/6/2002

[3pts.]1. Write the first four terms and show the limit, if it exists, of the *sequence* $\left\{\frac{1}{n} - \frac{1}{n+1}\right\}$.

[3pts.]2. Write the first four partial sums and show the limit, if it exists, of the *series* $\sum_{n=1}^{\infty}\left(\frac{1}{n} - \frac{1}{n+1}\right)$.

[3pts.]3. Determine if the series $\sum_{n=1}^{\infty} \frac{3\sin^2 n}{n!}$ converges or diverges.

[3pts.]4. Determine if the series $\sum_{n=1}^{\infty} \frac{\sqrt{n}}{e^{\sqrt{n}}}$ converges or diverges.

[3pts.]5. Determine if the series $\sum_{n=1}^{\infty} \frac{1}{\sqrt[3]{8n^2 - 5n}}$ converges or diverges.