PRINT your name:

Answer each question completely. You must fully justify your answers to get credit. Even a correct answer with no justification is wrong.

1. Does the series $\sum_{n=1}^{\infty} \left(\frac{1}{n^2} - \frac{1}{(n+3)^2} \right)$ converge or diverge? If it converges, find the sum. If it diverges, say so and justify your answer fully.

2. Consider the series $\sum_{n=0}^{\infty} \frac{(-1)^n \pi^{n+2}}{6^n}$. If it converges, find the sum. If it diverges, explain why.