Calculus II, Exam 3, Redo for #3
Name:

Please answer the following questions in the spaces provided. You may (and are encouraged to) use your textbook, especially Theorem 10.4.3 on page 653. However, you may not use any calculating utilities or other resources, or discuss this with anyone else. Any points you earn on this sheet will be added to your midterm exam score.

1. (6 pts) Given that $\sum_{k=1}^{\infty} \frac{(-1)^{k+1}}{k} = \ln(2)$ and $\sum_{k=1}^{\infty} \frac{(-1)^{k+1}}{k^2} = \frac{\pi^2}{12}$, calculate the values of:

(a) $\sum_{k=1}^{\infty} \frac{(-1)^{k+1}(2+k)}{k^2}$

(b) $\sum_{k=3}^{\infty} \frac{(-1)^{k+1}}{k^2}$