Quiz 1   - MAC 2312, Spring 2016

1. True/False questions. In each case, circle your answer (1 pt) and briefly justify (2 pts).

(a) (3 pts) The sequence $a_n = n^2 10^{-n}$, $n \geq 1$ is monotone.   **True**   **False**

Justification:

(b) (3 pts) Any bounded sequence is convergent.   **True**   **False**

Justification:

2. (a) (3 pts) Determine if the series $\displaystyle\sum_{k=2}^{\infty} \left(\frac{1}{k-1} - \frac{1}{k+1} \right)$ converges and if so find its limit.

(b) (3 pts) Determine if the series $\dfrac{1}{3} - \dfrac{2}{9} + \dfrac{4}{27} - \dfrac{8}{81} + \dfrac{16}{243} - \ldots$ converges and if so find its limit.