WRITE YOUR NAME AND CODE ON THE BACK. *Show your work!*

1. { 12 points } **Determine whether the series converges or diverges. Explain why.**

(A) $$\sum_{k=1}^{\infty} \left(\frac{1}{2^k} - \frac{1}{2^{k-1}} \right)$$

(B) $$\sum_{k=1}^{\infty} \left(\frac{4}{3} \right)^k$$

(C) $$\sum_{k=1}^{\infty} k^{-\frac{5}{2}}$$

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