MATH 202, Fall 2023 **Name:** _____
In class work 16 **Row and Seat**: _____

"The place to improve the world is first in one's own heart and head and hands, and then work outward from there."

ROBERT M. PIRSIG

In class work **16** has questions **1** through **2** with a total of **6** points. Turn in your work at the end of class *on paper*. This assignment is due *Tuesday 23 October 13:20*.

1. Use the *ratio test* to determine if each series converges or diverges.

2 (a) $\displaystyle\sum_{k=0}^{\infty} \frac{2^k}{3^k+8}$

2 (b) $\displaystyle\sum_{k=0}^{\infty} \frac{(2k)!}{k^2+9}$

2 (c) $\displaystyle\sum_{k=0}^{\infty} \frac{((k)!)^3}{(3k)!} 14^k$

2 2. Let a be a sequence and suppose the ratio test determines that the series $\sum a_k$ converges absolutely. Show that the series $\sum k a_k$ converges absolutely.