

6. [7 points] Determine if the following series converges or diverges using the **Limit Comparison Test**, and circle the corresponding word. **Fully justify** your answer including using **proper notation** and showing mechanics of any tests you use.

$$\sum_{n=1}^{\infty} \frac{\sqrt{2n^3 - n^2 + 1}}{5n^2 + n - 4}$$

Circle one:

Converges

Diverges

Justification (using the **Limit Comparison Test**):