

Quiz 7—————**Math 1272**

1 Show that the following series is divergent using the comparison theorem.

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

2 Is the following series convergent or divergent? Justify your answer carefully.

$$\sum_{n=1}^{\infty} \frac{n^2}{3^n}$$

3 Show that the following series is convergent.

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

4 Estimate the error of approximating $\sum_{n=1}^{\infty} (-1)^n \frac{3n}{2n^2+1}$ by the finite sum $\sum_{n=1}^{10} (-1)^n \frac{3n}{2n^2+1}$.