PRINT Your Name:_____

Consider the sequence whose n^{th} term is $a_n = \frac{3+5n^2}{n+n^2}$. Does the sequence converge? If so, find the limit of the sequence. Justify your answer.

We compute

$$\lim_{n\to\infty} \frac{3+5n^2}{n+n^2} = \lim_{n\to\infty} \frac{\frac{3}{n^2}+5}{\frac{1}{n}+1} = \frac{0+5}{0+1} = 5.$$

Yes, the sequence converges to 5.