PRINT Your Name:____________________

Quiz 8 — March 7, 2014 – Section 7 – 12:00 – 12:50

Remove everything from your desk except this page and a pencil or pen.
The solution will be posted soon after the quiz is given.

$\boxed{\text{Circle}}$ your answer. **Show your work. Your work must be correct and coherent.**
The quiz is worth 5 points.

Consider the sequence whose n^{th} is $a_n = \sqrt{\frac{3+2n^2}{8n^2+n}}$. Does this sequence converge? If so, find its limit.

Answer: Divide the top and by bottom by n^2 to see that

$$\lim_{n\to\infty} a_n = \lim_{n\to\infty} \sqrt{\frac{3+2n^2}{8n^2+n}} = \lim_{n\to\infty} \sqrt{\frac{\frac{3}{n^2}+2}{8+\frac{1}{n}}} = \sqrt{\frac{2}{8}} = \sqrt{\frac{1}{4}} = \frac{1}{2}.$$

$$\boxed{\text{We conclude that the sequence converges to } \frac{1}{2}.}$$