PRINT Your Name:_____

Quiz 9 — October 14, 2011 – Section 8 – 11:15 – 12:05

Remove everything from your desk except a pencil or pen.

The quiz is worth 5 points.

Find the limit of the sequence whose n^{th} term is $a_n = (1 + \frac{2}{n})^n$.

Answer: We know that $\lim_{n\to\infty} (1 + \frac{r}{n})^n = e^r$. It follows that

$$\lim_{n\to\infty} a_n = \lim_{n\to\infty} \left(1 + \frac{2}{n}\right)^n = e^2.$$

We conclude that the sequence $\{a_n\}$ converges to $\boxed{e^2}$.