Math 152 – Fall 2013 – Dr. Linhart – Quiz 8A

"An Aggie doesn't lie, cheat or steal, or tolerate those who do."

I did not give or receive any unauthorized aid on this quiz.

Signature: _____

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1. In the left hand corner of this page, put your name, below your name put your UIN, and below your UIN put your section, and don't forget to sign the Honor statement above. **(1 point)**

2. Which of the following is Taylor's Formula? Circle the correct choice. **(2 points)**

(a) $f(x) = \displaystyle\sum_{n=0}^{\infty} f^{(n)}(a)(x-a)^n$

(b) $f(x) = \displaystyle\sum_{n=0}^{\infty} (-1)^n \frac{f^{(n)}(a)}{n!}(x-a)^n$

(c) $f(x) = \displaystyle\sum_{n=0}^{\infty} (-1)^n f^{(n)}(a)(x-a)^n$

(d) $f(x) = \displaystyle\sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n!}(x-a)^n$

(e) $f(x) = \displaystyle\sum_{n=0}^{\infty} \frac{f^{(n)}(a)}{n}(x-a)^n$

More on back, please turn over!

3. Using Taylor's formula from the previous page, take derivatives and prove the formula for the Maclaurin series for $\sin(x)$. Recall that the Maclaurin series is the Taylor series centered around $x = 0$. **(5 points)**

4. Using the Maclaurin series for $\sin(x)$, find $\lim\limits_{n \to 0} \dfrac{\sin(x) - x}{x^3}$. **(2 points)**

If you have extra time, please write me a note or draw me a picture. Thanks!