Math 118: Calculus (AP) **Lab Test** Name: _____

Instructor: Ramin Naimi Thursday, 30 Nov 2006

Closed book. Closed notes. No Calculators.

Please write very legibly.

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1. Let $S_n = \sum_{k=1}^{n} \frac{\sin(7k)}{k}$. Use Excel to find all of $S_1, S_2, \cdots, S_{500}$. (Do not write anything here.)
2. Write your answers to the following:

   $S_{10} =?$ $S_{50} =?$ $S_{100} =?$ $S_{500} =?$
3. Find $S_1 + S_2 + \cdots + S_{500}$ and write your answer here:
4. Use Mathematica to find $\sum_{k=1}^{\infty} \frac{\sin(7k)}{k}$; write your answer here:

Solutions

1.
2. $S_{10} = 1.155051703$ $S_{50} = 1.211135253$ $S_{100} = 1.22619433$ $S_{500} = 1.210073675$
3. 606.0687093
4. 1.21239