

Math 112, section \_\_\_\_\_ = % NAME: \_\_\_\_\_  
Quiz 10, version A, spring 2012 20  
Section 13.1-13.2 & 9.5 Seat Location: \_\_\_\_\_

**Full credit is based on work shown!**

4pts

1. The displacement  $d$  (in meters) of an object at time  $t$  (in seconds) is  $d = -4 \cos(2t)$ . This object has simple harmonic motion. Include units with your answers.
- What is the maximum displacement from its resting position? \_\_\_\_\_
  - What is the time required for one oscillation? \_\_\_\_\_

6pts

2. For this sequence: 5, 13, 21, 29, 37, 45, 53, ...
- Give a recursive formula to define this sequence.  $a_1 =$  and  $a_n =$
  - Give a non-recursive formula for the sequence.  $a_n =$
  - What is the 41<sup>st</sup> term in this sequence?  $a_{41} =$   
(Show your work.)

3pts

3. Write a formula for the  $n^{\text{th}}$  term of this sequence.

$$\frac{2}{1}, \frac{4}{5}, \frac{6}{25}, \frac{8}{125}, \frac{10}{625}, \dots \quad a_n =$$

7pts

4. a. Write out the terms in the indicated sequence and then find the sum.

$$\sum_{k=1}^5 k^2 + 7$$

- b. Use the sum(seq(...)) feature of your graphing calculator to find the sum of the first 30 terms of this sequence. Write down what you type into your calculator and then indicate the result.