Math 141 – Spring 2004 _____ NAME: _____Answers_____

Quiz #3   15

Sections 2.2-2.3   Seat: _____

Full credit is based on work shown!

See examples in lecture notes in module 2 and examples in the textbook.

6pts

1. Express 342 in each of the following systems.
   a. Babylonian   b. Mayan

   Divide to **"regroup"** the numbers.   **Divide** to **"regroup"** the numbers.
   Instead of hundreds, it needs to be grouped   Divide to see how many 20s and what is left.
   in 60s and what is left.

   $5(60) + 42(1)$ $17(20) + 2(1)$
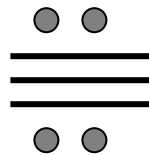
6pts

2. Rewrite each number as indicated.
   a. $342_{ten} = \underline{\quad} 526 \underline{\quad}_{eight}$ b. $342_{five} = \underline{\quad} 97 \underline{\quad}_{ten}$

Divide by the powers of the base eight.   **Write in expanded notation,**
That is divide by 64, then by 8.   **then multiply and add.**

   $\underline{5}(8^2) + \underline{2}(8^1) + \underline{6}(8^0)$ $3(5^2) + 4(5^1) + 2(5^0)$
   $5(64) + 2(8) + 6(1)$ $3(25) + 4(5) + 2(1)$
   $\qquad \underline{526}$ $\quad 75 + 20 + 2$
   $\qquad\qquad\qquad\qquad\qquad 97$

3pts

3. List the base four numerals in order from 1 to 103_{four}. (That is, show how to count in base four.)

   Note: In base four the digits that can be used are from this set of four numbers {0, 1, 2, 3}
   So the numbers would be:

   1, 2, 3, 10, 11, 12, 13, 20, 21, 22, 23, 30, 31, 32, 33, 100, 101, 102, 103

See examples of counting in the lecture notes and pictures using blocks in the textbook.
See Module 2 in the Blackboard Course. At the bottom of module 2 under "Resources" use the link to
Multi-Base blocks e-manipulative to represent numbers in various bases
http://nlvm.usu.edu/en/nav/frames_asid_152_g_2_t_1.html

Or use the NLVM eManipulative. Go to WileyPLUS, "Read, Study, & Practice", choose chapter 2,
Then
   Resources for Technology Problems
      eManipulatives
   Then choose "Multibase Blocks"