Math 141 Su '05 ____ NAME: ___ANSWERS_____
quiz # 4 20
sections 4.1-4.3, 5.1 Seat: _____

Show all work. Credit is based on work shown!

DO **NOT** USE A CALCULATOR ON THIS QUIZ

3pts

1. **Calculate** this **mentally** using the equal additions method. Write out the necessary steps.

Note: This subtraction would be easier if there were zeros in the number being subtracted.
So use the equal additions method to change it to have zeros.

152 + 4 = 156 Or 152 - 100 = 52 + 4 = 56
– 96 + 4 = - 100
56

5pts

2. Show the steps to **estimate** the sum of the following numbers using:

a. the **range method**

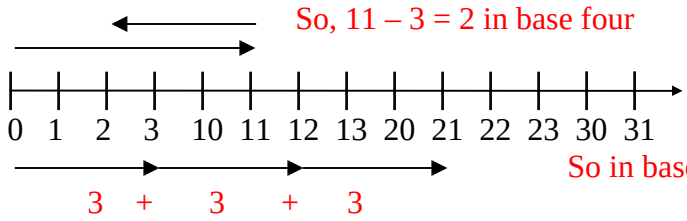
Low		High
5000	5728	6000
3000	3405	4000
0	152	1000
7000	+ 7127	8000
15000		19000

b. the **one-column with adjustment** method.

Begin with the low of the range for one-column estimate.
Then **adjust** the answer by adding an estimate of the sum of the rest of each number beyond the first column.
[(728 + 405 + 152 + 127) is approximately 1500; since (728 + 152 + 127) is about 1000, and still need + 405]
So the answer is approximately 15,000 + 1500 = 16,500

7pts

3. **Do the following problems in base four!** Use the number-line for your basic number facts.



So in base four $2 \cdot 3 = 12$ and $3 \cdot 3 = 21$

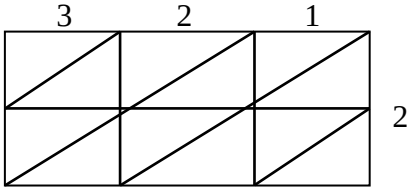
a. Subtraction by the standard algorithm.

$$\begin{array}{r} 3\ 2\ 1 \\ -\ 2\ 3\ 3 \\ \hline \end{array}_{four}$$

a. The answer is 22 in base four

b. Multiplication by the lattice method.

321 *x* 32 $_{four}$ = ___30,132_____ $_{four}$



b. The answer is 30, 132

5pts

4. **Without dividing**, answer each question yes or no, then **justify your answer** by **showing** the **divisibility test**.

a. Does 9 | 8430 ? ___NO___ Justify by showing your divisibility test.
The sum of the digits must be a number that is a multiple of 9.
(8 + 4 + 3 + 0) = 15, but 15 is not a multiple of 9.

b. Does 6 | 8430 ? ___YES__ Justify by showing your divisibility test.
The last digit must be even, that is, 0, 2, 4, 6, or 8 and
the sum of the digits must be a multiple of 3.