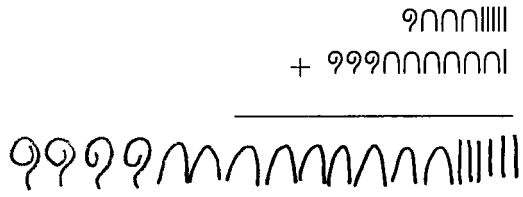
Fri, Sept 7, 2012 **MATH 210** **Quiz 1**

Name: (print) Solutions

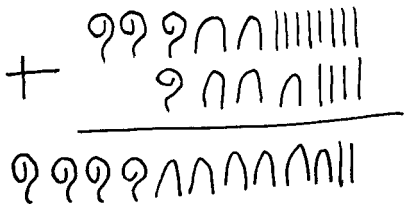
Each problem is worth 2 points. Show all work.

1. (a) Do column addition for the Egyptian numerals below. Then check your answer by converting to decimal numerals:



$$\begin{array}{r} 135 \\ +\ 361 \\ \hline 496 \end{array}$$

(b) Write a similar pair of column additions for $328 + 134$



$$\begin{array}{r} {\scriptstyle 1} \\ 328 \\ +\ 134 \\ \hline 462 \end{array}$$

2. (a) What is the greatest 4-digit number that you can make using all the digits 0, 7, 2, 8? *Explain the strategy for solving this problem.*

8720

The greatest number is obtained by using the largest digit (8) as the number of thousands, then the next largest digit (7) as the number of hundreds, etc.

(b) What is the smallest 4-digit number that you can make using all the digits 0, 7, 2, 8?

2078

[0278 is not a 4-digit number.]

Please turn over...

3. (a) Which thinking strategy or arithmetic property (or properties) are being used in the following statement:

"2 thousands and 2 ones is equal to 2 ones and 2 thousands" ?

$2000 + 2 = 2 + 2000$

commutative property

(b) Find the sum mentally by looking for pairs which add to a multiple of 10 or 100. Give the answer and show how you obtained it.

(i) $4 + 17 + 32 + 23 + 36 + 20$ (40, 50)

(ii) $11 + 45 + 34 + 55 = 145$ (100, 45)

$(4+36) + (17+23+20) + 32$

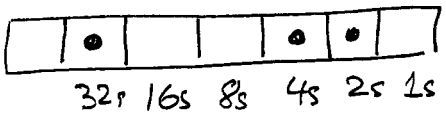
$= 40 + 50 + 32$

$= 90 + 32 = 122$

4. Convert the number 38 to binary (base two), octal (base eight) and hexadecimal (base sixteen) systems.

$38 = 32 + 4 + 2 = 2^5 + 0\times2^4 + 0\times2^3 + 2^2 + 2^1 + 0$

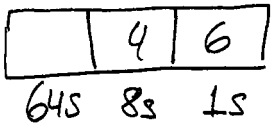
Binary:



$38 = (1\ 0\ 0\ 1\ 1\ 0)_{two}$

Octal

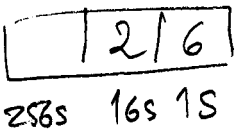
$38 = 8 \cdot 4 + 6$



$(46)_{eight} = 38$

Hexadecimal:

$38 = 2 \cdot 16 + 6$



$38 = (26)_{sixteen}$