Math 365-501   Exam 1
Februaryy 16, 2009
S. Witherspoon

Name_____

There are 9 questions, for a total of 100 points. Point values are written beside each question. *No calculators allowed. Show your work for full credit.*

1. [10 points] Add the following two Egyptian numerals (without converting to decimals) and give the result as an Egyptian numeral.

$$||||| \cap \cap \cap \cap \qquad\qquad |||||| \cap \cap \cap \cap \cap \cap$$

2. [15] Convert 143_{nine} to base three without changing to base ten.

3. [15] Dora goes on a trip to a country where the numeration system is base five. At a store, she buys a shirt for 212_{five}, a vest for 324_{five}, and a pair of pants for 1044_{five}. If she gives the store clerk a bill worth 10000_{five}, how much money (in base five) should she get back?

4. [10] Illustrate $7 - 3 = 4$ using the number line model.

5. [10] Calculate the following, paying close attention to the standard order of operations:

$$5^2 + 14 \div 2 - 3 \cdot 4$$

6. [10] Joey calculated $58 + 14$ as follows:

$$
\begin{align}
58 + 14 &= 58 + (2 + 12) \tag{1} \\
&= (58 + 2) + 12 \tag{2} \\
&= 60 + 12 \tag{3} \\
&= 72 \tag{4}
\end{align}
$$

What property of addition did Joey use to get from line 1 to line 2 of his calculation?

7. [10] Bobby calculated the following. Redo the calculation correctly, and write a sentence explaining to Bobby how to fix his calculation.

8. [10] Susie believes that $0 \div 0 = 1$ because $0 \cdot 1 = 0$. What could you tell Susie to correct her reasoning?

9. (a) [5] Find the sum $1 + 2 + 3 + \cdots + 77$.

   (b) [5] Find the sum $5 + 6 + 7 + \cdots + 78$.