

MTHT 465: Homework for Nov. 21: Place Value

No class Nov. 14 due to CPS report card pick up. Instead we have a somewhat longer assignment.

I. Read chapter 2 on multidigit multiplication from Ma's book.

II. A mathematics educator has asserted that base 10 blocks are a problematic manipulative for teaching place value because they don't illustrate the crucial aspect of *positional* notation. What does this mean? Do you agree? Can you think of any way around this?

Explain how you would illustrate an addition, subtraction, or multiplication calculation (just one of them) with a manipulative so as to demonstrate the role of place value in making the algorithm work. (VERY IMPORTANT: the idea is not to illustrate the idea of e.g. subtraction, but the actual algorithm.)

III. Do the problem on the attached page concerning the division algorithm.

IV. Convert the following repeating decimals to the form p/q .

1. $31.\overline{4}$

2. $3.\overline{14}$

3. 3.14

4. $3.\overline{142}$

V. How do the numbers described in IV compare in size with π . (Hint: use your calculator and then think.)

VI. $1010.001 < 10100.001$ regardless of whether it is viewed as a decimal or a binary number. Why?