

Expectations for Test 1

Wednesday, June 3, 2009

Review your notes and assigned work over the topics below.

Chapter 1 Expectations: Getting Started in Learning Mathematics via Problem Solving

You will be expected to:

1. distinguish between *exercises* and *problems*. (See class notes)
2. use Polya's 4-step problem solving process (Activity 1.7):
 - understand the problem
 - devise a plan
 - carry out the plan
 - look back
3. explain, illustrate, apply the following strategies:
 - guess and test (What's My Number?, Poison)
 - use a variable (pigs and hens, Poison, Cereal Boxes and Patio Tiles)
 - draw a picture (pigs and hens, Die Hard, Cereal Boxes and Patio Tiles /Tournament/ Triangular Numbers)
 - look for a pattern (pigs and hens, Cereal Boxes and Patio Tiles, how many squares)
 - make a list (What's My Number?, pigs and hens, Census taker, Constructing Numbers)
 - solve a simpler problem (how many squares)
4. understand why it is important to learn how to solve mathematics problems (Activity 1.7)

Chapter 2 Expectations: Numeration

You will be expected to:

5. work with a numeration system different than our own (Activity 2.1-2.4), i.e., Tally, Egyptian, Babylonian, Chinese-Japanese, and Roman.
6. compare the characteristics and properties of the Hindu-Arabic numeration system with other systems (2.1-2.4)
7. distinguish between a number, a numeral, and the name of a number (Activity 2.2)
8. understand the ideas of face value, place value, a number base, a minimal collection, and the concepts of grouping, trading, and decomposing (i.e., a flat into a long) in any number base.
9. be able to count in another base.
10. explain how to use a number grid to add or subtract whole number and why it works.
11. represent addition or subtraction of whole numbers using base pieces.
12. convert a numeral from any base to base ten and vice versa.
13. write a numeral given in any base in expanded form and understand the place value and face value of any digit.
14. determine the base of a given numeral if you know the number it represents.