Journal Assignment 1 – Due Monday, April 19 by 4:30 pm

Article: Hewitt, D. (1999). Arbitrary and Necessary Part 1: A way of viewing the mathematics curriculum. For the Learning of Mathematics, 19(3), 2-9.

In this article, David Hewitt describes a difference between topics in the mathematics curriculum. He writes that *arbitrary* concepts in mathematics are those that students can come to know only "by being informed of it by some external means" (p. 3). For example, on page 2 of the article, he writes of how students are often told that a foursided polygon with congruent sides is called a square. On page 3 of the article, he writes that students need to be informed that a full rotation around a circle is a 360 degree turn.

In contrast, Hewitt described *necessary* concepts in mathematics as those that students can discover on their own through carefully chosen questions and activities and by using their awareness and observations. For example, teachers can help students to use their awareness to discover the differences between squares and other four-sided polygons to establish the conclusion that squares have sides that are the same length. This is in contrast to the *arbitrary* where students are given this fact to be memorized.

In his summary, Hewitt writes about "Viewing the mathematics curriculum in terms of those things which can be worked out by someone (*necessary*) and those things which everyone needs to be informed about (arbitrary) ..." (p. 9)

For your assignment, choose two mathematical concepts in either Section 2.1 or 2.2:

- Explain whether you think these concepts are *arbitrary* or *necessary*, according to Hewitt's definition. Are these concepts *necessary* something that students can discover using their awareness? Or are these concepts *arbitrary* something that teachers must inform students of?
- Explain why you chose to describe the mathematical concept as arbitrary or necessary.
- For each concept, explain how you would present the concept to your students based on your conclusions.

For each concept, limit your writing to between 500 and 800 words. You can use diagrams to help in your explanation. Please type and double-space your assignment.