**Benchmarks for Conceptions of Equality**  
(*Thinking Mathematically*, pp. 19-20)

1. Children are specific about what they think the equal sign means. For example, typical misconceptions for the open sentence   
8 + 4 = \_\_\_ + 5 include:

* + The answer comes next (the answer is 12).
  + Use all of the numbers (the answer is 17).
  + Extend the problem (the answers are 12 and 17).

2. Children accept as true some number sentences that are not of the form a + b = c.

Examples: 8 = 5 + 3 8 = 8

3 + 5 = 8 + 0 3 + 5 = 3 + 5

9 + 2 = 2 + 9

3. Children recognize that the equal sign represents a relation between two equal numbers, often by carrying out the calculations on each side of the equal sign and comparing those results.

4. Children are able to compare the mathematical expressions without actually carrying out the calculations.