Math 4 Honors Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lesson 5-2: Problem Solving Activity Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 *Boston Chicken Revisited . . . .*

The counting problem discussed in the article is to determine the number of different 3-side-dish choices that can be made from 16 side dishes.



1. Are repetitions allowed in this situation? Does order matter? Are the 3-side-dish choices examples of

 permutations, combinations, or neither?

2. The correct answer given by the math teacher and his students is 816. Explain how to determine this

 answer. Try your own methods to solve this problem. *Show your work.*

 ***If your group is having problems coming up with 816, consider the hint below. Show your work.***

Consider three cases: (1) all three side dishes are different,

(2) exactly two of the side dishes are the same, and

(3) all three side dishes are the same.

3. The Boston Chicken Problem is an example of a counting problem in which repetitions are allowed and

 order does not matter. These are sometimes called ***selection***problems. Although these problems can be

 solved by careful counting, there is a formula that will make this a simpler process…

The number of selections of *k* objects from *n* objects when repetition

is allowed and order does not matter is *C*(*n* + *k* – 1, *k*).

 *Try out the formula and see if you get the same result that you did in #2.*

 *Show your work in the space below.*

4. Examine the following advertisement. How many different Pick 5 orders are possible? *Show your work.*

