Combinations – Warm Up

Name: _____ Date: _____

1. You show up to a yard sale and there are four different cabbage
    patch kids. They are rare collectibles. You have the choice of buying
    none, 1, 2, 3, or all of them.

    a) How many different purchases could you make? Show two
        methods for solving this.

    b) Let's assume you buy all four. You have three cousins that would love them. How many ways
        could you give them to your three cousins?

2. Your university co-ed intramural hockey team has 8 girls and 10 boys. Only 6
    people are allowed on the ice at a time.
    a) How many ways can a line be chosen with no restrictions? (doesn't matter how
        many girls or boys are on the team)

    b) How many ways can a line be formed if it must have 4 boys and 2 girls?

    c) How many ways can a line be formed if it must have a least one girl on the ice.

3. If you have eight people and you want to make a group of two you would do 8 chose 2 and it can be written as: $\binom{8}{2}$ Expand this in factorial form and evaluate.

4. In your class of 30 people you want to make groups of five so that all the students are use. A student is asked how many ways this can be done and they write:

$$\binom{30}{5}$$

What did they forget and show the correct formulation of this and evaluate it?