**Activity 3.4.1 False Advertising: How Many Pizzas Can They Make?**

It's Friday night and you're exhausted, so you decide to go out for pizza. A local pizza restaurant has two signs displayed in the store as shown below, one with the possible toppings you can put on your pizza and the other saying that they can make over 30 different kinds of pizza.

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| --- | --- | --- |
| Pizza Toppings* Pepperoni
* Sausage
* Onions
* Mushrooms
* Broccoli
 | Screen Shot 2015-02-08 at 5 | We Make Over 30 Different Pizzas! |

You are skeptical about whether they can make over 30 pizzas with only 5 toppings and ask the owner to explain how he can make over 30 different pizzas. The owner explains that you can put any combination of the five toppings on the pizza.

1. Use the space below to see if you can identify all the different pizzas you could make. Before you begin, make a prediction if the claim is valid or not.

2. How many pizzas do you think you could make with 10 toppings? Explain your answer.

3. Add one topping of your choice to the five original toppings and find how many more pizzas you can make now. Describe how you went about answering the question.

4. How does the answer for #3 compare to your answer for #2? Can you make a conjecture about what happens every time you add a new topping to the list?

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Journal Prompt 3.4.1: Why do you think so many pizzas can be made with so few toppings?