**Part I.**

Marcus has 6 pet rabbits. He keeps them in two cages that are connected so they can go back and forth between the cages. One cage is orange and the other cage is blue.

1. Show all the ways that 6 rabbits can be in two cages.
2. Write an equation that represents the rabbits.
3. Write a different equation that represents the rabbits.
4. Write a different equation that represents the rabbits.

**Part II.**

Find the weight of the pair of shoes and pair of socks.

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13.9 ounces

1. Write an equation that represents the above balance scale.
2. What does 13.9 represent in the equation?
3. What do you notice about the shoes if the pair of socks weighs 0.8 ounces? How can you find the weight of the pair of shoes if the pair of socks weighs 0.8 ounces?
4. How can you find the weight of the pair of socks if the pair of shoes weighs 13.1 ounces?

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13.9 ounces

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Select a variable to represent the athletic shoes (tennis shoes).

* 1. Select a variable to represent the socks.
	2. Write an equation that represents the above equations using variables instead of pictures.
	3. Write an equation in terms of athletic shoes.

* 1. Write an equation in terms of socks.

**TASK: “BUILDING WITH TOOTHPICKS”**

The shapes shown below are made with toothpicks. Look for patterns in the number of toothpicks in the perimeter of each shape.

 Shape 1 Shape 2 Shape 3 Shape 4

1. Use a pattern from the shapes above to determine the perimeter of the fifth shape in the sequence. Show or explain how you arrived at your answer.
2. Graph the relationship between the shape number and the perimeter. Based on your graph identify the dependent and independent variable.

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1. What is the perimeter for shape “*n*”?
2. Write a formula that you could use to find the perimeter of any shape *n*. Explain how you found your formula.
3. What is the shape number if it had a perimeter of 128?
4. What is the perimeter for shape 10?
5. Is there a figure with a perimeter of 62? Explain your reasoning.