Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Variables and Patterns***

**Investigation 4.3**

***Problems A, B***

 Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Hour \_\_\_\_

* Use the distributive property to write an equivalent expression for 5x + 6x : \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* How does this help write an equivalent expression for n + n + n + 1 ?





 What equations show how the three cost variables depend on the number of riders *n*?

 **1.** bike rental *B* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** food and campsite fees *F* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 **3.**  rental of the bus and trailer *R* = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Three of the business partners write

equations that relate total tour cost *C*

to the number of riders *n:*

**1.** Are any or all of these equations correct? If so, are they equivalent?

 Explain why.

**2.** Compare the equations. Use order of operations to complete the table below.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Number of****Customers, *n*** | **5** | **10** | **15** | **20** | **25** |
| **C = 30n + 120n +1000** |  |  |  |  |  |
| **C = 150n + 1000** |  |  |  |  |  |
| **C = 1150n** |  |  |  |  |  |



For each expression, use the properties of operations to write an equivalent expression.

**1.** 5x + x + 6 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**2.** 10y – 2y \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**3.** Show that 1 + 3n = 4 + 3(n – 1)